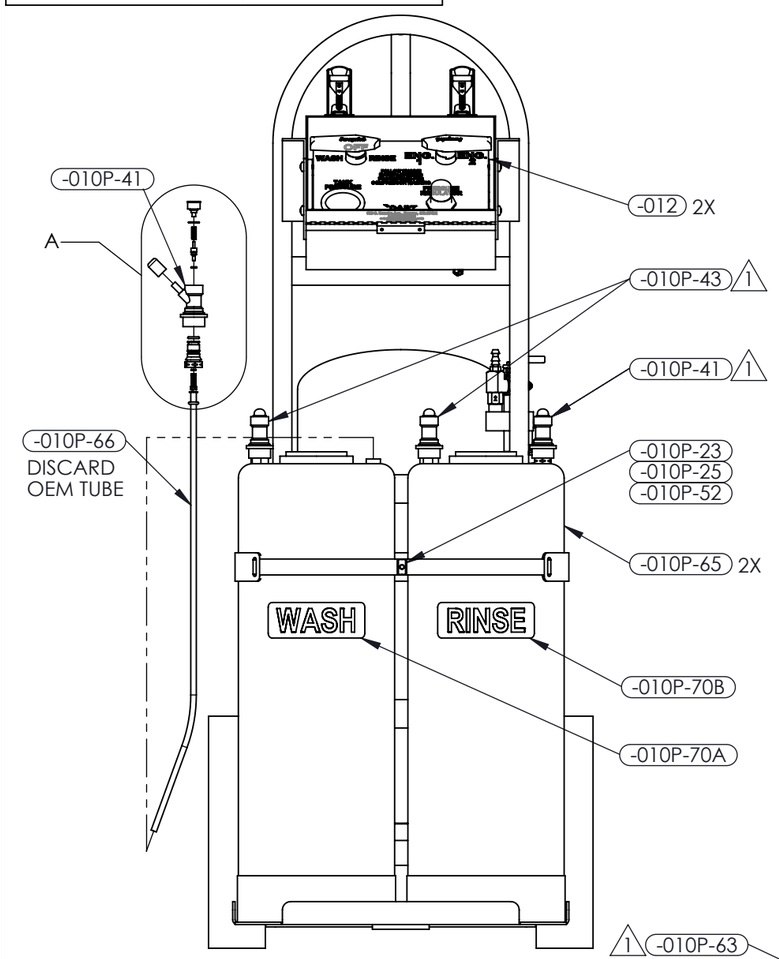
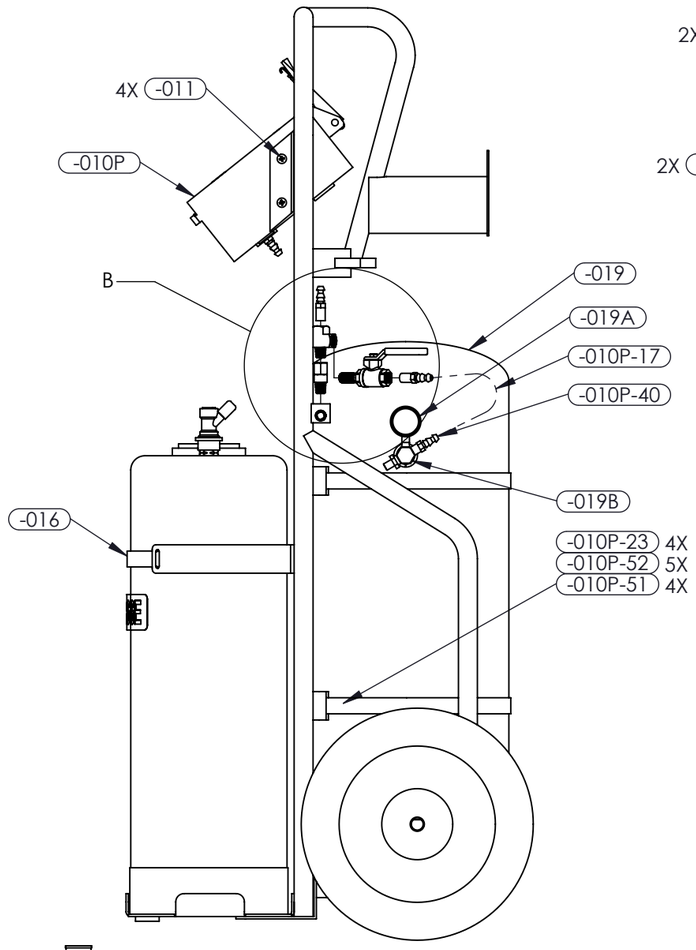
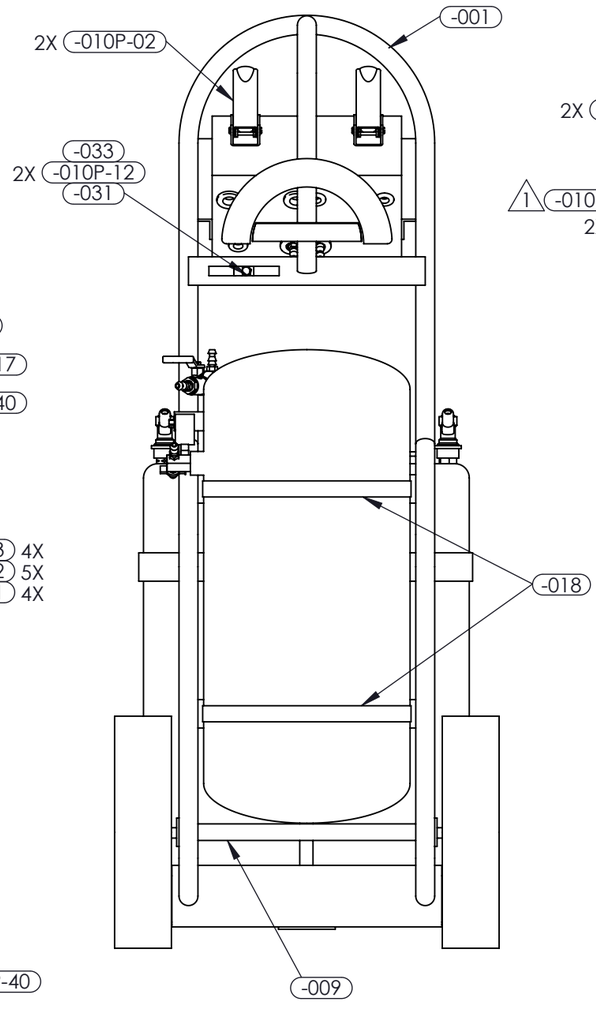
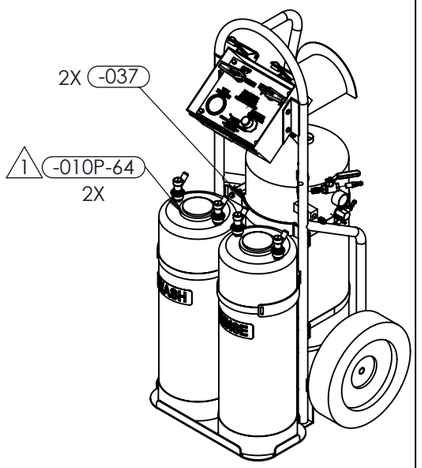
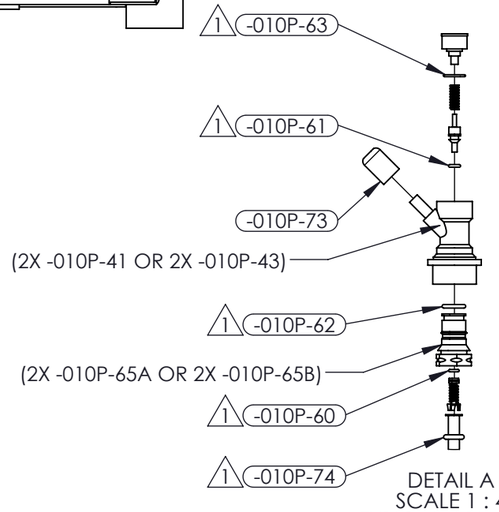
SEE ATTACHED DEVIATION



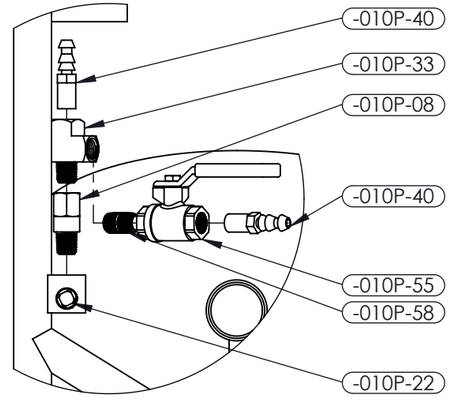








DETAIL A
SCALE 1 : 4
TYPICAL 4 PLACES



DETAIL B
SCALE 1 : 4

NOTE:
1 REPLACEMENT FITTINGS MUST HAVE VITON O-RINGS INSTALLED.

DART AEROSPACE

TITLE	ENGINE WASH UNIT
DWG NO.	HT-500-CWA
REV	10
MAT'L	
HEAT TREAT	
FINISH	
SPEC	
DRAWN BY:	NELSON
CHECKED:	DUERFELDT
OPPS APPR:	ANDERSON
QA APPR:	LINDSAY
APPROVED:	GILBERT
SCALE	1:8
DATE	7/15/2014
	SHEET 1 OF 32

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
.XXX ± .005 FRACTIONS ± 1/8
.XX ± .01 ANGLES ±.5°
.X ± .1 SURFACES = 125
1. BREAK ALL SHARP EDGES .015 x 45° OR .015R
2. DIMENSIONAL LIMITS APPLY AFTER PLATING
3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009

USED ON MODEL

SEE ATTACHED DEVIATION

ASSY QTY	ASSY QTY	B/O	Part #	UNIT QTY	Description	Material	B/O INFORMATION OR SPECIFICATIONS	PG.
	X		-001	1	FRAME WELDMENT			5
	1	B/O	-002		400LB HAND CART	ALUMINUM	GRAINGER #3W153	5
	1		-003		PAN	5052		6
	1		-004		PAN FOOT	6061		7
	1		-005R		BOX MOUNT	6061		8
	1		-005L		BOX MOUNT	6061		9
	1		-006		MANIFOLD	6061		10
	1		-007		HOSE HANGER	6061		11
	1		-007A		BRACE	6061		12
	1		-008		HANGER RIM	6061		13
		B/O	-009	1	AXLE HOSE RED	RUBBER	3/4 IN ID X 13-1/4 PACIFIC RUBBER #GYIHORIZON3/4RED200	1
		B/O	-011	4	SCREW	S.S.	1/4-20 X 1/2 (MCMASTER-CARR #91772A537)	1
			-012	2	BOX MT BAR	6061		14
	1		-013		BAND MOUNT	6061		15
	1		-014		TANK BAND	6061		16
			-016	1	FLUID TANKS CLAMP BAND	SS		17
	2		-017		AIR TANK CRADLE	5052		18
			-018	2	AIR TANK BANDS	S. S.		19
		B/O	-019	1	11 GAL SPEEDAIR TANK		(CENTRAL PNEUMATIC #65595)	1
		B/O	-019A	1	AIR TANK PRESSURE GAUGE		(SUPPLIED WITH-019 TANK) GRAINGER #4FLR3	1
		B/O	-019B	1	AIR TANK MANIFOLD		(SUPPLIED WITH -019 TANK) GRAINGER #6X272	1
		B/O	-031	1	HEX HEAD CAP SCREW	SS	1/4-20 X 3/4 (MCMASTER-CARR #92240A540)	1
		B/O	-033	1	NYLOC NUT	SS	1/4-20 (MCMASTER-CARR #91831A029)	1
		B/O	-037	2	FOAM PAD	NEOPRENE	1/2 X 1-1/2 X 8 (MCMASTER-CARR #8694K96)	1
X			-010P	1	CONTROL BOX ASSEMBLY			20
1			-010P-01		CONTROL BOX	ALUMINUM	(PLATT ELECTRIC) HOFFMAN BOX #A-1008CHAL MODIFIED	21
		B/O	-010P-02	2	HOFMAN LATCH	STEEL	(PLATT ELECTRIC) #AL-23(PLTD)	1
1			-010P-03		HINGE STOP	6061		22
1			-010P-04		PANEL PLATE	6061		23
1			-010P-05		CONTROL PANEL	PLASTIC	(MULTI-CRAFT #LM922402)	24
1		B/O	-010P-06		100 PSI PRESSURE GUAGE	STEEL	PARAMOUNT 2IN #100XUC 1/4 B 100	20
2		B/O	-010P-08	1	1/4 MIP X FIP CHECK VALVE	BRASS	AIR OIL AOP TECH #2-008/410-4M4F-B OR 410-4M4F-F	1, 20
4		B/O	-010P-09		GROMMET	RUBBER	Ø1.00 X 5/64 (MCMASTER-CARR #9600K55)	20
3		B/O	-010P-10		GROMMET	RUBBER	Ø13/16 X 1/16 (MCMASTER-CARR #9307K26)	20
2		B/O	-010P-11		PUSH LOCK ADAPTER, FEMALE	BRASS	PACIFIC RUBBER #NWHJF-6-6 SAE-45 (TO ENGINE HOSE END)	20
		B/O	-010P-12	2	5/8 INSULATED HOSE CLAMP	STEEL	PACIFIC RUBBER PIC7317A	1
1		B/O	-010P-14		ARROW REGULATOR		AOP TECH #R-162	20
1		B/O	-010P-15		ARROW NUT	PLASTIC	AOP TECH #PK-1611	20
1		B/O	-010P-16		HOSE	RUBBER	Ø3/8 PACIFIC RUBBER #GAT6LOLA 30 FT	20
A/R		B/O	-010P-17	A/R	HOSE	RUBBER	Ø1/4 PACIFIC RUBBER #GAT4LOLA 10 FT	20
4			-010P-19		THREADED ROD	SS	10-32 X 2-3/4 (MCMASTER-CARR #98921A011) MODIFIED	25
4		B/O	-010P-20		ACORN NUT	SS	10-32 (MCMASTER-CARR #91855A460)	20
		B/O	-010P-22	1	1/4 PIPE PLUG	BRASS	PACIFIC RUBBER #PAR 218P-4	1
		B/O	-010P-23	5	BARREL NUT	STEEL	1/4-20 X .786 J&S #JCD14202010	1
2		B/O	-010P-24		PAN HD MACH SCREW	SS	#10-24 X 3/8 (MCMASTER-CARR #91772A240)	20
		B/O	-010P-25	1	HEX HEAD CAP SCREW	SS	1/4-20 X 1-1/2 (MCMASTER-CARR #92240A546)	1
2		B/O	-010P-32		SWAGELOCK		PORTLAND VALVE B-44XF4	20
1		B/O	-010P-33	1	RUN TEE	BRASS	PACIFIC RUBBER #PAR2225P-4	1, 20
6		B/O	-010P-34		90° ELBOW	BRASS	PACIFIC RUBBER #PAR2202P-4-4	20
1		B/O	-010P-36		90° FEMALE FITTING	BRASS	PACIFIC RUBBER #PAR170PF-4-4	20
1		B/O	-010P-37		90° FITTING	BRASS	PACIFIC RUBBER #PAR169 PF-4-2	20
2		B/O	-010P-38		90° FITTING	BRASS	PACIFIC RUBBER #PAR169 PF-6-4	20
2		B/O	-010P-39		PUSH LOCK ADAPTER, MALE	BRASS	PACIFIC RUBBER #NWH-PM6-4	20
5		B/O	-010P-40	3	PUSH LOCK ADAPTER, MALE	BRASS	PACIFIC RUBBER #NWH-PM4-4	1, 20
		B/0	010P-41	2	AIR QUICK DISCONNECT		FOXX EQUIPMENT #07C07138 WHITE	1
		B/O	-010P-43	2	FLUID QUICK DISCONNECT		FOXX EQUIPMENT #07C07139 BLACK	1
4		B/O	-010P-48		SPACER	6061	Ø5/16 O.D. X Ø.192 I.D. X 2 (MCMASTER-CARR #92510A254)	20
ASSY -010P	ASSY -001							

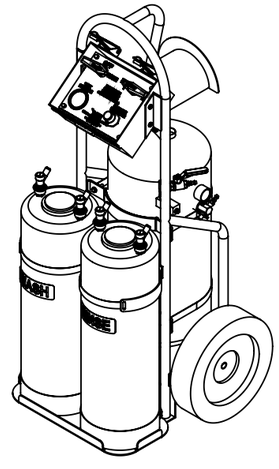
ASSY QTY	ASSY QTY	B/O	Part #	UNIT QTY	Description	Material	B/O INFORMATION OR SPECIFICATIONS	PG.
		B/O	-010P-51	4	HEX HEAD CAP SCREW	SS	1/4-20 X 1-1/4 (MCMASTER-CARR #92198A544)	1
		B/O	-010P-52	5	WASHER	SS	Ø1/4 (MCMASTER-CARR #93852A102)	1
		B/O	-010P-55	1	JOMAR BALL VALVE		PACIFIC RUBBER #JON1/4MINIMXF	1
		B/O	-010P-58	1	NIPPLE	BRASS	PACIFIC RUBBER #PAR 215PN-4	1
		B/O	-010P-60	4	O-RING	VITON	#V75-007	1
		B/O	-010P-61	4	0-RING	VITON	#V75-008	1
		B/O	-010P-62	4	O-RING	VITON	#V75-111	1
		B/O	-010P-63	4	O-RING	VITON	#V75-013	1
		B/O	-010P-64	2	O-RING	VITON	#5-979V884-75 FOR FLUID TANKS	1
		B/O	-010P-65	2	5 GAL FLUID TANK		FOXX EQUIPMENT #15C07-124	1
		B/O	-010P-66	1	#5 DIP TUBE	S.S.	FOXX EQUIPMENT #15C07-126	1
1		B/O	-010P-67		TUBE	VINYL	3/8 OD. X 1/4 ID X .062 WALL, 1 FT	20
1		B/O	-010P-68		TUBE	VINYL	1/4 OD. X .17 ID. X .040 WALL, 1 FT	20
1		B/O	-010P-69		DOUBLE STICK TAPE	POLYPROPYLENE	2-7/8 WIDTH 16IN GRAINGER #24A686	20
		B/O	-010P-70A	1	WASH EMBLEM	VINYL	(SIGNS NOW)	26
		B/O	-010P-70B	1	RINSE EMBLEM	VINYL	(SIGNS NOW)	27
1		B/O	-010P-71		GREEN SHRINK TUBING	PVC	3/4 (MCMASTER-CARR #7132K776) (ENG 2 HOSE END)	20
1		B/O	-010P-72		RED SHRINK TUBING	PVC	3/4 (MCMASTER-CARR #7132K772) (ENG 1 HOSE END)	20
		B/O	-010P-73	4	FERRULE	S.S.	FOXX EQUIPMENT #06E04-147	1
		B/O	-010P-74	4	O-RING	VITON	#V75-109	1
2		B/O	-010P-75		PLASTIC PLUG	PLASTIC	#6 MALE JIC (FOR -11 ENG ENDS) PACIFIC RUBBER #ALLT5	20
ASSY -010P	ASSY -001							

OPTIONAL HT-500-CWA FLAT FREE TIRE KIT

B/O	Part #	UNIT QTY	Description	Material	B/O INFORMATION OR SPECIFICATIONS	PG.
B/O	-010P-76	2	FLAT FREE TIRE KIT		4104FF HUB: 225 BEARING: 58P	N/S

OPTIONAL HT-900 ADAPTER KIT

B/O	Part #	UNIT QTY	Description	Material	B/O INFORMATION OR SPECIFICATIONS	PG.
B/O	-71	1	RUN TEE	BRASS	PAR2225P-4	20
B/O	-73	1	1/4 MIP X FIP CHECK VALVE	BRASS	AIR OIL #2-008/410-4M4F-B	20
B/O	-75	1	QUICK CONNECT ADAPTER MALE	BRASS	B-QC4-D-4PM	20



NOTE:
010P-65D REPLACEMENT TANK LID FOXX EQUIPMENT #15-D04-117 PER EB 1-13-14.

DART AEROSPACE

TITLE: ENGINE WASH UNIT

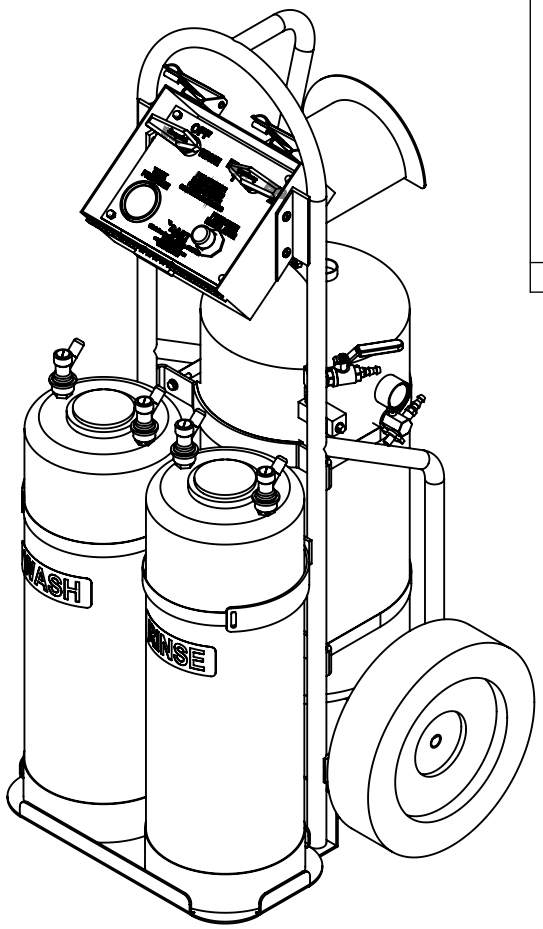
DWG NO.: HT-500-CWA | REV: 10

MAT'L	
HEAT TREAT	
FINISH	
SPEC	
DRAWN BY:	NELSON
CHECKED:	DUERFELDT
OPPS APPR:	ANDERSON
QA APPR:	LINDSAY
APPROVED:	GILBERT

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
FRACTIONS ± 1/8
.XXX ± .005 ANGLES ±.5°
.XX ± .01 SURFACES = 125
.X ± .1
1. BREAK ALL SHARP EDGES .015 x 45° OR .015R
2. DIMENSIONAL LIMITS APPLY AFTER PLATING
3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009

USED ON MODEL

SCALE 1:8 | DATE 7/15/2014 | SHEET 2 OF 32



REVISIONS

REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
1		MODIFIED ORGANAZATION OF PARTS AND P/N, AND SEPARATED SUB ASSEMBLIES.	8/18/06	WP	APPROVED
2		ADDED R 7/16 TO -003 CORNERS & SHORTENED -13 1/2".	7/28/21/06	WP	APPROVED
3		ADDED CONTROL BOX MODIFICATIONS (pg.18) & HINGE STOP DWG (pg 19) & PLATE PLATE DWG (pg. 20).	8/21/06	WP	APPROVED
4		REMOVED MATERIALS LIST FROM EACH PAGE AND ADDED THE MASTER B.O.M. (PG 2). ADDED ALL PARTS, IDENTIFIERS, AND DESCRIPTIONS TO THE ASSEMBLY DWG'S. ADDED AIR TANK FITTINGS (pg 16), -16 CLAMP BAND DWG, -18 AIR TANK CLAMP BAND DWG, AND CHANGED -7 SLOT FROM 1 in.	7/17/07	WP	APPROVED
5		ADDED NEW TITLE BLOCK TO DRAWINGS, MERGED SEVERAL DRAWINGS TO ONE PAGE AND REDUCED PAGES FROM 20 TO 14. ALSO ADDED 1/2 in TO -007 HOSE REEL, ALSO ADDED -007A BRACE, AND MOVED HOSE REEL UP 2-11/16 FROM ITS ORIGINAL POSITION ON HAND TRUCK. MORE DETAILS WERE ADDED TO ASSEMBLY VIEW. ADDED MILLED R.50 TO -006 MANIFOLD, CONTROL BOX BOTTOM DWG., AND CONTROL PLATE DWG.	12/16/08	WP	-
5A		ADDED P/N -19A & -19B TO PG #11, & MASTER BOM. CH'D 031 TO 1/4-20 X 3/4 HEX HEAD BOLT, CH'D 010P-11 TO NMHJF-6-6 PER V.E.	2/2/10	RJC	RW
5B		CH'D SOME BOM INFORMATION TO REFLECT CORECT VENDORS & P/NS PER B.R.	7/28/2014	RJC	RW
5C		CH'D -005, -010P-24, -017 BOM INFORMATION PER V.E.	6/29/11	RJC	RW
5D		REPLACED -14 ARROW #R-162, DELETED -15 PER RW.	1/17/12	RJC	RW
5E		REV 5D DID NOT WORK. REVERTED BACK TO REV C CONFIGURATION. DELETED HT500-CW FROM DWG. NO. IN TITLEBLOCK.	11/1/12	RJC	SE
5F		UPDATED BOM. REMOVED CW OPTION. ADDED 010P-76 (FLAT TIRE KIT).	5/31/13	BIM	RW
6		CH'D POSITION OF -017 WAS 8-1/2 IS 10-1/2 FROM BOTTOM OF PART. ADDED 010P-76 FLAT FREE TIRE KIT TO BOM.	6/17/13	BIM	RW
6A		CH'D TITLEBLOCK FROM HELI TECH TO RED BARN.	9/5/13	RJC	RW
7	14-0131	CH'D TITLE BLOCK WAS RED BARN IS DART. REDRAWN IN SOLIDWORKS. ADDED B/O INFO **-009** #GYIHORIZON3/4RED200, **-031** #92240A540, **-033** #91831A029, **-037** #8694K96, **-010P-05** ROWMARK #822422, **-010P-16** WAS HOSE 6LOLA IS GAT6LOLA, **-010P-17** WAS HOSE 4 LOLA 8FT IS GAT4LOLA 10FT. **-010P-19** #98921A011, **-010P-20** #91855A311, **-010P-23** #JCD14202010, **-010P-24** #91772A240, **-010P-25** #92240A546, **-010P-51** #92198A544, **-010P-52** #93852A102, **-010P-69** #24A686, **-010P-71** #7132K776, **-010P-72** #7132K772, **-010P-75** #ALLT5. **-005R**, **-005L**, **-006**, **-007**, **-007A**, **-008**, **-012**, **-013**, **-018**, **-010P-03**, **-010P-04**, **-010P-48**, CH'D RAW MATERIAL LENGTHS. **-003** CH'D DIM WAS 1.25 IS 4X 1.21. **-006** CH'D DIMS WAS 1/4 NPT ↧ 1.052 IS Ø.44 ↧ .84 1/4 NPT, WAS Ø.526 ↧ 2.00 1/4 NPT IS Ø.44 ↧ 2.00 1/4 NPT, WAS 1.00 IS (1.00), WAS 1.00 IS (1.00), DELETED DIM .87 AND .84. **-007** CH'D DIMS WAS .125 IS (.125), WAS Ø6 IS (Ø6), ADDED NOTE. **-007A** CH'D DIM WAS .13 IS (.13). **-008** CH'D DIM WAS .087 IS (.087). **-012** CH'D DIM WAS .25 IS 2X .25, WAS .25 IS (.25). **-013** CH'D DIM WAS .188 IS (.188). **-014** CH'D DIMS WAS .125 IS (.125), WAS 1.50 IS (1.50). **-016** ADDED DIMS 2X R.13, R.25, AND .75. **-017** ADDED MISSING DIMS 1.06, 4X R.19, CH'D DIMS WAS 7.75 IS 7.70, WAS .188 IS (.188). **-037** WAS 1/4 X 1-1/2 X 8 IS 1/2 X 1-1/2 X 8. **-010P-01** CH'D DIM WAS 3X Ø.81 IS 3X Ø.75. **-010P-03** CH'D DIMS WAS .25 IS 2X .25, WAS .25 IS (.25). **-010P-04** WAS .080 X 7-1/8 X 9-1/4 IS .080 X 7-1/8 X 9-3/8. **-010P-50 -010P-53**, **-010P-54**, **-010P-56**, **-010P-57** DELETED P/N'S OF DUPLICATE ITEMS. **-010P-66** CH'D QTY WAS 2 IS 1, CH'D B/O INFO WAS #15C04-126 IS #15C07-126. **-001** & **-019** CH'D FINISH WAS POWDER COAT T-5920 S9 YELLOW RIBBON IS POWDER COAT YELLOW FED #13538. **-010P-48**, **-010P-70A**, **-010P-70B** ADDED DRAWINGS. CH'D TOLERANCE ON NON-CRITICAL DIMENSIONS.	7/28/14	DJN	RJC
8	16-0045	**-010P-08** CH'D B/O WAS AIR OIL AOP TECH # 2-008/410-4M4F-B, IS AIR OIL AOP TECH # 2-008/410-4M4F-B OR 410-4M4F-F	2/24/2016	SM	JAG

SEE ATTACHED DEVIATION

DART AEROSPACE

TITLE: ENGINE WASH UNIT

DWG NO.: HT-500-CWA | REV: 10

MAT'L	
HEAT TREAT	
FINISH	
SPEC	
DRAWN BY:	NELSON
CHECKED:	DUERFELDT
OPPS APPR:	ANDERSON
QA APPR:	LINDSAY
APPROVED:	GILBERT

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
.XXX ± .005 FRACTIONS ± 1/8
.XX ± .01 ANGLES ±.5°
.X ± .1 SURFACES = 125 √

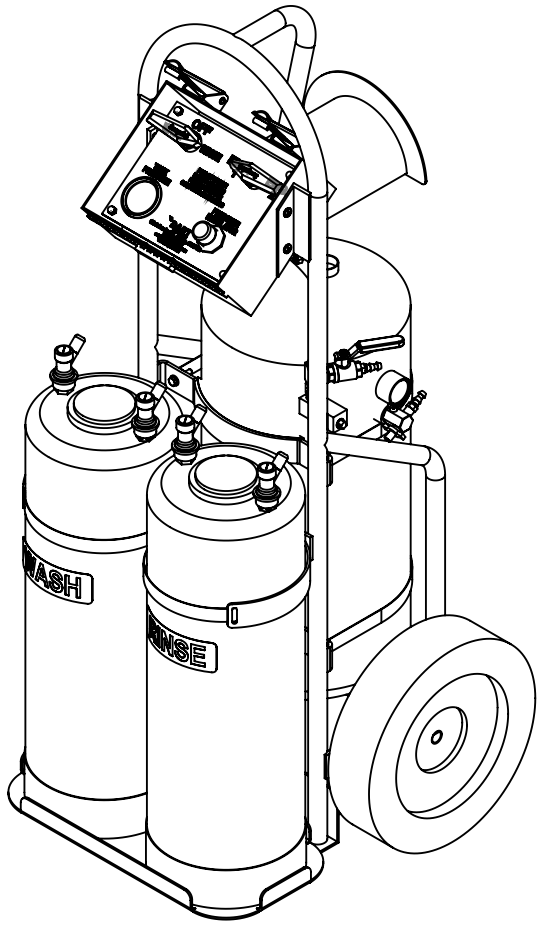
1. BREAK ALL SHARP EDGES .015 x 45° OR .015R
2. DIMENSIONAL LIMITS APPLY AFTER PLATING
3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009

USED ON MODEL

SCALE 1:10 | DATE 7/15/2014 | SHEET 3 OF 32

REVISIONS

REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
9	16-0205	**-001**, **-003**, **-005R**, **-005L**, **-007**. **-007A**, **-008**, **-012**, **-013**, **-014**, **-016**, **-017**, **-018**, **-010P-05**, **-010P-70A**, **010P-70B** CH'D DWG TO SHEET METAL TOLERANCE. **-001** CH'D DIM WAS 37.25 IS 2X 37.25. **-003** CH'D DIM WAS 8.75 IS 8.88, WAS (.125) IS .13. **-004** CH'D DIM WAS (.25) IS .25. **-005R** CH'D DIMS WAS (.13) IS .13 WAS (1.25) IS 1.25, WAS (1.25) IS 1.25, WAS .63 IS 2X .63, WAS 2.31 IS 2.313, DELETED DIM .75. **-005L** CH'D DIMS WAS (.13) IS .13, WAS (1.25) IS 1.25, WAS (1.25) IS 1.25, WAS .63 IS 2X .63, WAS 2.31 IS 2.313, DELETED DIM .75. **-006** CH'D DIMS WAS (1.00) IS 1.00, WAS (1.00) IS 1.00, WAS Ø.44 ↧.84 1/4 NPT IS Ø.44 ↧.84 1/4 NPT ↧.50, WAS Ø.44 ↧2.00 1/4 NPT IS Ø.44 ↧2.00 1/4 NPT ↧.87. **-007** CH'D DIM WAS (.125) IS .13, WAS (Ø6) IS Ø6.00. **-007A** CH'D DIMS WAS Ø5.75 IS 5.75, WAS (.13) IS .13, ADDED DIM 5.39. **-008** CH'D DIM WAS (.087) IS .09. **-012** CH'D DIM WAS (.25) IS .25, WAS 2.31 IS 2.313. **-013** CH'D DIMS WAS (1.50) IS 1.50, WAS (1.88) IS .19. **-014** CH'D DIM WAS (.125) IS .13, WAS (1.50) IS 1.50, ADDED DIM 1.50, Ø.266 THRU. **-016** CH'D DIMS WAS (.031) IS .03, WAS (.75) IS .75, WAS 2X 4.13 ±.1 IS 2X 4.13 ±.10, ADDED DIMS 2X 9.70, 2X 45°, 2X R3.53, 2X 5.88,. **-017** CH'D DIMS WAS (1.50) IS 1.50, WAS (.188) IS .19, WAS (1.69) IS 1.69. **-018** CH'D DIM WAS (.031) IS .03, WAS (.75) IS .75, ADDED DIMS R5.45, 2X 10.86, ADDED VIEW C-C. **-010P-01** DELETED DIM 2.66, ADDED DIM 2.313 ±.010, CH'D DIM WAS 2X Ø.313 THRU ALL IS 2X Ø.313 ↧.10. **-010P-03** CH'D DIM WAS (.25) IS .25, ADDED FINISH CLEAR ANODIZE MIL-A-8625F-TYPE II CLASS I. **-010P-04** CH'D DIM WAS (.08) IS .08. **-010P-05** DELETED DIM 4X .03 X 45°, CH'D DIM (.061) IS .06, WAS 2X Ø1.08 IS 2X Ø1.08 THRU ALL, WAS Ø2.09 IS Ø2.09 THRU ALL, WAS Ø1.21 IS Ø1.21 THRU ALL, WAS 4X Ø.25 IS 4X Ø.25 THRU ALL, CH'D NOTE WAS TOP IS TEXTURED BLACK WITH WHITE PLASTIC BACKING. ALL LETTERING IS CUT TO THE WHITE PLASTIC, ↧.02 IS BLACK BACKGROUND WITH WHITE LETTERS, CH'D P/N WAS ROWMARK #822422 IS (MULTI-CRAFT #LM922402). **-010P-10** CH'D B/O INFO WAS GROMMET 3/4" IS Ø13/16 X 1/16. **-010P-19** ADDED DWG, CH'D B/O INFO WAS 10-32 X 2-3/4 MCMMASTER-CARR #98921A011 IS 10-32 X 2-3/4 (MCMMASTER-CARR #98921A011) MODIFIED. **-010P-20** CH'D P/N WAS MCMASTER-CARR #91855A311 IS #91855A460. **-010P-48** CH'D FROM MANUFACTURED PART TO BUYOUT P/N (MCMASTER-CARR #92510A254). **-010P-60**, **-010P-61**, **-010P-62**, **-010P-63**, **-010P-64**, **-010P-74** CH'D MATERIAL WAS RUBBER IS VITON, REMOVED VITON FROM B/O INFO.	11/21/2016	RJC	JAG
10	17-0058	**-001** DELETED HAND TRUCK BLADE CUT TO 4.25 NOTE. **-014** ADDED DIM 2X R.13. **-019** CH'D B/O REF. WAS GRAINGER #3EUJ9 IS (CENTRAL PNEUMATIC #65595). **-010P** CH'D NOTE WAS TAP DEEPER TO ALLOW CLEARANCE OF BOX BOTTOM IS TAP DEEPER TO ALLOW CLEARANCE OF BOX BOTTOM (APPROXIMATELY 3 FULL TURNS OF TAP; ↧.65). **-010P-05** CH'D DIMS WAS 2.08 IS 2X 2.08, WAS 3.13 IS 4X 3.13. **-010P-17** CH'D QTY TO A/R. **-010P-17** DELETED FROM BOM (KEPT ON CUSTOMER LIST). **-010P-52** CH'D QTY WAS 4 IS 5. **-010P-65A**, **-010P-65B**, **-010P-65C** DELETED FROM BOM (KEPT ON CUSTOMER LIST). **-010P-67**, **-010P-68** ADDED 1FT TO B/O REF.	3/6/2017	DPD	JAG



SEE ATTACHED DEVIATION

DART AEROSPACE

TITLE: ENGINE WASH UNIT

DWG NO.: HT-500-CWA | REV: 10

MAT'L

HEAT TREAT

FINISH

SPEC

DRAWN BY:	NELSON
CHECKED:	DUERFELDT
OPPS APPR:	ANDERSON
QA APPR:	LINDSAY
APPROVED:	GILBERT

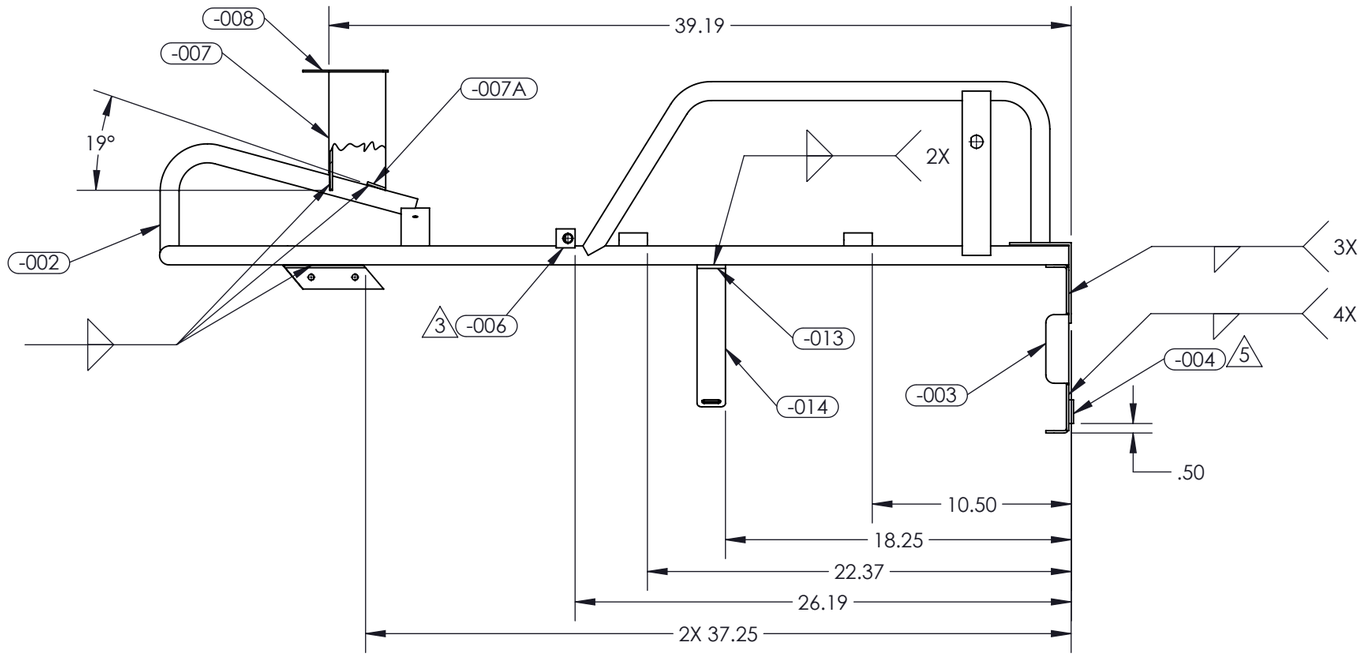
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
.XXX ± .005 FRACTIONS ± 1/8
.XX ± .01 ANGLES ±.5°
.X ± .1 SURFACES = 125√

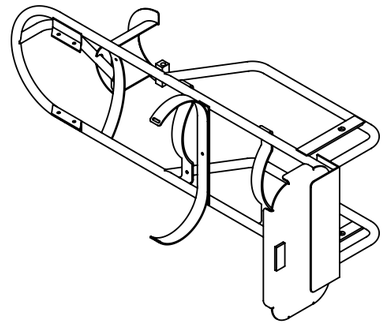
1. BREAK ALL SHARP EDGES .015 x 45° OR .015R
2. DIMENSIONAL LIMITS APPLY AFTER PLATING
3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009

USED ON MODEL

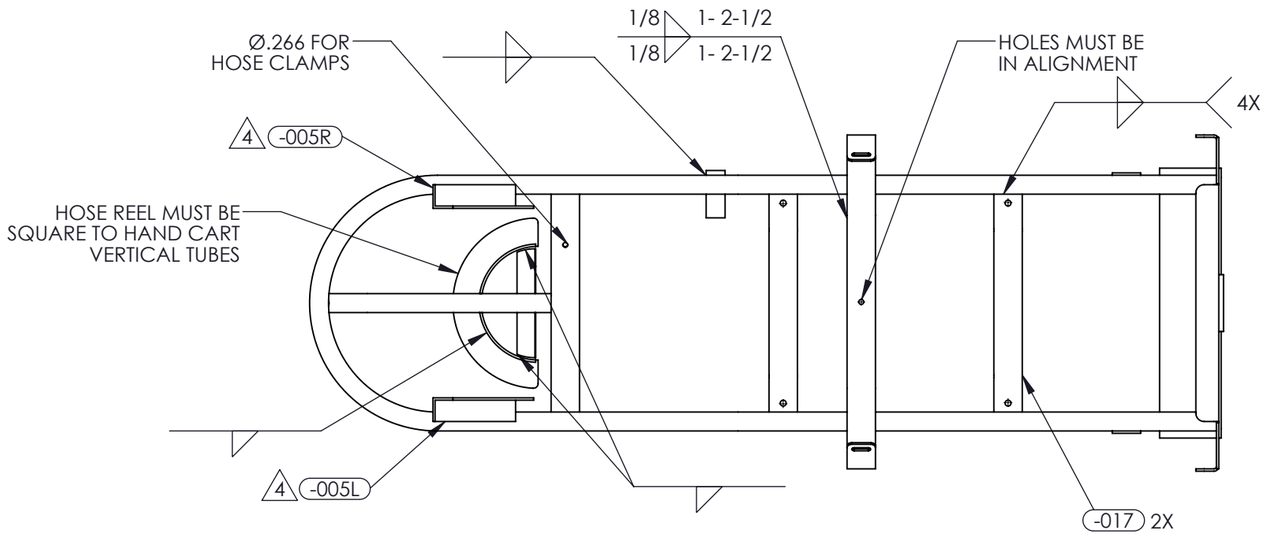
SCALE 1:10 | DATE 7/15/2014 | SHEET 4 OF 32

REVISIONS					
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
7	14-0131	**-001** CH'D FINISH WAS POWDER COAT T-5920 S9 YELLOW RIBBON IS POWDER COAT YELLOW FED #13538.	7/28/2014	DJN	RJC
9	16-0205	**-001** CH'D DIM WAS 37.25 IS 2X 37.25, CH'D DWG TO SHEET METAL TOLERANCE.	11/21/2016	RJC	JAG
10	17-0058	**-001** DELETED HAND TRUCK BLADE CUT TO 4.25 NOTE.	5/22/2017	DPD	JAG





SEE ATTACHED DEVIATION



-001

FRAME WELDMENT

NOTES:
1. REMOVE THE BOTTOM TWO CROSS MEMBERS. THEY ARE NOT USED.
2. FINISH -001 FRAME WELDMENT & -019 TANK POWDER COAT YELLOW FED #13538.

3 PORT MUST FACE UP. END HOLE TO OUTSIDE, 1/4in STICKS OUT FROM TUBE OF HAND TRUCK. MUST HAVE CLEARANCE FOR TEE INSTALLATION, AND NOT TOUCH AUX TANK.

4 USE FIXTURE TUBES TO ALIGN BRACKETS TO CENTER OF CART.

5 WELD PAD CENTERED ON BOTTOM WITHOUT WARPAGE.

DART AEROSPACE

TITLE: ENGINE WASH UNIT

DWG NO. HT-500-CWA-001 REV 10

MAT'L	
HEAT TREAT	
FINISH	SEE NOTE 2
SPEC	
DRAWN BY:	NELSON
CHECKED:	DUERFELDT
OPPS APPR:	ANDERSON
QA APPR:	LINDSAY
APPROVED:	GILBERT

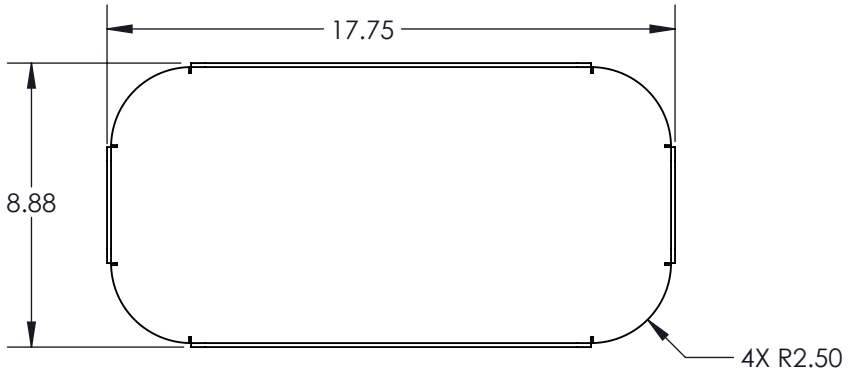
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
.XXX ± .010 FRACTIONS ± 1/8
.XX ± .03 ANGLES ±1°
.X ± .1 SURFACES = 125
1. BREAK ALL SHARP EDGES .015 x 45° OR .015R
2. DIMENSIONAL LIMITS APPLY AFTER PLATING
3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009

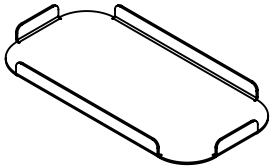
USED ON MODEL

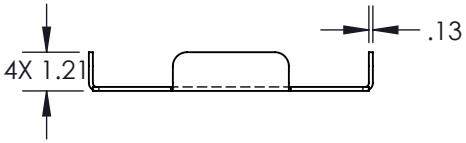
SCALE 1:8 | DATE 7/15/2014 | SHEET 5 OF 32

REVISIONS

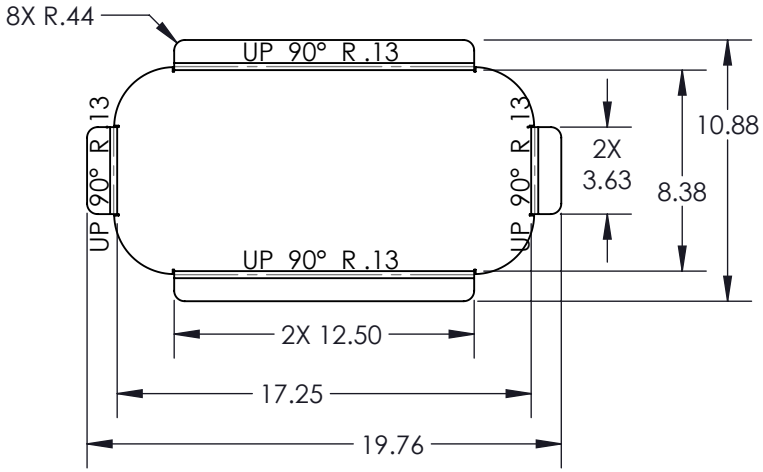
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
7	14-0131	**-003** CH'D DIM WAS 1.25 IS 4X 1.21.	7/28/2014	DJN	RJC
9	16-0205	**-003** CH'D DIM WAS 8.75 IS 8.88, WAS (.125) IS .13, CH'D DWG TO SHEET METAL TOLERANCE.	11/21/2016	RJC	JAG







SEE ATTACHED DEVIATION



FLAT PATTERN FOR REFERENCE ONLY

-003

PAN

DART AEROSPACE

TITLE: ENGINE WASH UNIT

DWG NO. HT-500-CWA-003 REV 10

MAT'L	5052
HEAT TREAT	
FINISH	SEE -001 WELDMENT
SPEC	
DRAWN BY:	CLOUGH
CHECKED:	DUERFELDT
OPPS APPR:	ANDERSON
QA APPR:	LINDSAY
APPROVED:	GILBERT

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
.XXX ± .010 FRACTIONS ± 1/8
.XX ± .03 ANGLES ±1°
.X ± .1 SURFACES = 125

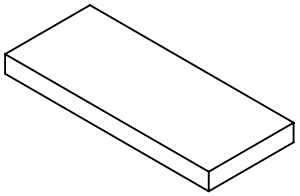
1. BREAK ALL SHARP EDGES .015 x 45° OR .015R
2. DIMENSIONAL LIMITS APPLY AFTER PLATING
3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009

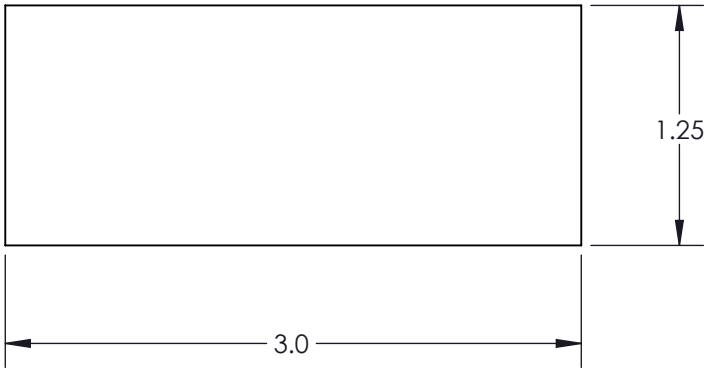
USED ON MODEL

SCALE 1:6 DATE 11/18/2016 SHEET 6 OF 32

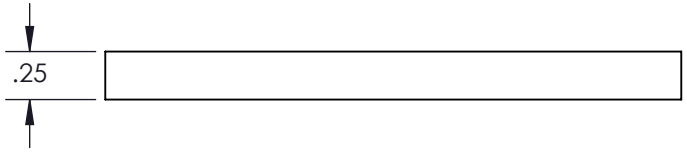
REVISIONS

REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
9	16-0205	**-004** CH'D DIM WAS (.25) IS .25.	11/21/2016	RJC	JAG





SEE ATTACHED DEVIATION



-004

PAN FOOT

DART AEROSPACE

TITLE: ENGINE WASH UNIT

DWG NO. HT-500-CWA-004 REV 10

MAT'L	6061
HEAT TREAT	
FINISH	SEE -001 WELDMENT
SPEC	
DRAWN BY:	NELSON
CHECKED:	DUERFELDT
OPPS APPR:	ANDERSON
QA APPR:	LINDSAY
APPROVED:	GILBERT

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
.XXX ± .005 FRACTIONS ± 1/8
.XX ± .01 ANGLES ±.5°
.X ± .1 SURFACES = 125

1. BREAK ALL SHARP EDGES .015 x 45° OR .015R
2. DIMENSIONAL LIMITS APPLY AFTER PLATING
3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009

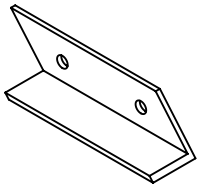
USED ON MODEL

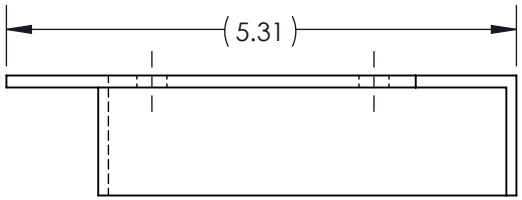
SCALE 1:1 | DATE 6/27/2014 | SHEET 7 OF 32

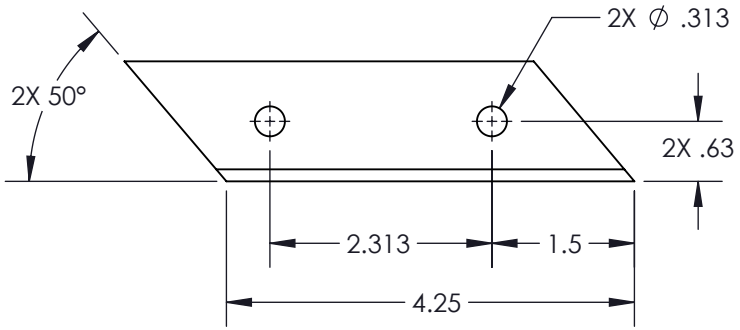
REVISIONS

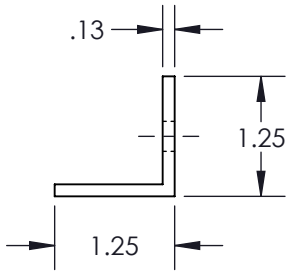
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
7	14-0130	**-005R** CH'D B/O INFO WAS 5-5/16 IS 5-7/16.	7/28/14	DJN	RJC
9	16-0205	**-005R** CH'D DIMS WAS (.13) IS .13 WAS (1.25) IS 1.25, WAS (1.25) IS 1.25, WAS .63 IS 2X .63, WAS 2.31 IS 2.313, DELETED DIM .75, CH'D DWG TO SHEET METAL TOLERANCE.	11/21/2016	RJC	JAG

SEE ATTACHED DEVIATION









-005R

BOX MOUNT

DART AEROSPACE

TITLE: ENGINE WASH UNIT

DWG NO. HT-500-CWA-005R REV 10

MAT'L	6061
HEAT TREAT	
FINISH	SEE -001 WELDMENT
SPEC	
DRAWN BY:	NELSON
CHECKED:	DUERFELDT
OPPS APPR:	ANDERSON
QA APPR:	LINDSAY
APPROVED:	GILBERT

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
.XXX ± .010 FRACTIONS ± 1/8
.XX ± .03 ANGLES ±1°
.X ± .1 SURFACES = 125

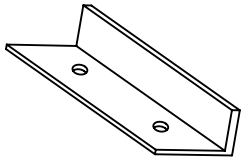
1. BREAK ALL SHARP EDGES .015 x 45° OR .015R
2. DIMENSIONAL LIMITS APPLY AFTER PLATING
3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009

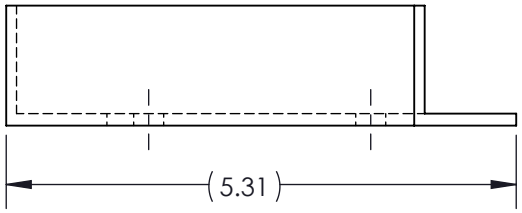
USED ON MODEL

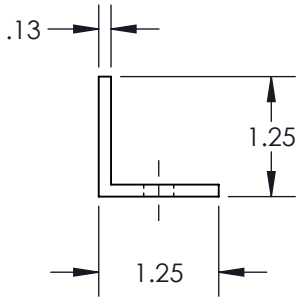
SCALE 1:2 DATE 7/8/2014 SHEET 8 OF 32

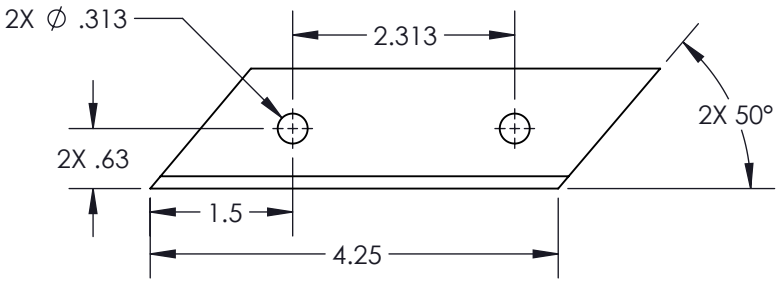
REVISIONS

REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
7	14-0131	**-005L** CH'D B/O INFO WAS 5-5/16 IS 5-7/16.	7/28/14	DJN	RJC
9	16-0205	**-005L** CH'D DIMS WAS (.13) IS .13, WAS (1.25) IS 1.25, WAS (1.25) IS 1.25, WAS .63 IS 2X .63, WAS 2.31 IS 2.313, DELETED DIM .75, CH'D DWG TO SHEET METAL TOLERANCE.	11/21/2016	RJC	JAG









SEE ATTACHED DEVIATION

-005L

BOX MOUNT

DART AEROSPACE

TITLE: ENGINE WASH UNITS

DWG NO. HT-500-CWA-005L REV 10

MAT'L	6061
HEAT TREAT	
FINISH	SEE -001 WELDMENT
SPEC	
DRAWN BY:	NELSON
CHECKED:	DUERFELDT
OPPS APPR:	ANDERSON
QA APPR:	LINDSAY
APPROVED:	GILBERT

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
.XXX ± .010 FRACTIONS ± 1/8
.XX ± .03 ANGLES ±1°
.X ± .1 SURFACES = 125

1. BREAK ALL SHARP EDGES .015 x 45° OR .015R
2. DIMENSIONAL LIMITS APPLY AFTER PLATING
3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009

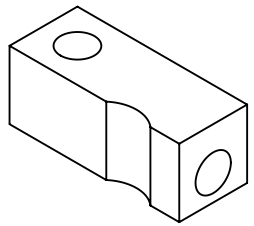
USED ON MODEL

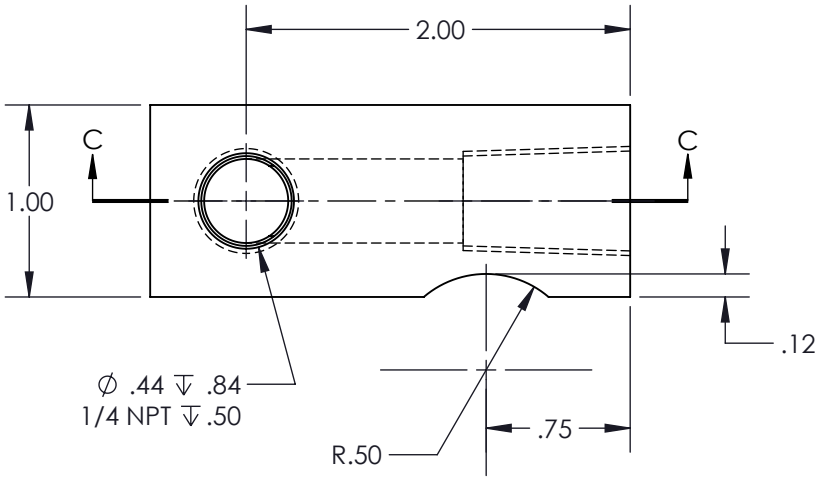
SCALE 1:2 DATE 6/27/2014 SHEET 9 OF 32

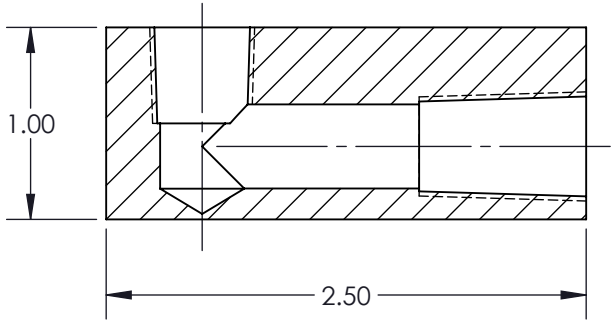
REVISIONS

REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
7	14-0131	**-006** CH'D DIMS WAS 1/4 NPT ↧1.052 IS Ø.44 ↧.84 1/4 NPT, WAS Ø.526 ↧2.00 1/4 NPT IS Ø.44 ↧2.00 1/4 NPT, WAS 1.00 IS (1.00), WAS 1.00 IS (1.00), DELETED DIM .87 AND .84.	7/28/2014	DPD	RJC
9	16-0205	**-006** CH'D DIMS WAS (1.00) IS 1.00, WAS (1.00) IS 1.00, WAS Ø.44 ↧.84 1/4 NPT IS Ø.44 ↧.84 1/4 NPT ↧.50, WAS Ø.44 ↧2.00 1/4 NPT IS Ø.44 ↧2.00 1/4 NPT ↧.87.	11/21/2016	RJC	JAG

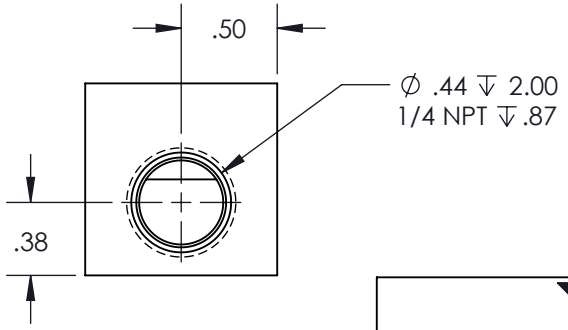
SEE ATTACHED DEVIATION







SECTION C-C



-006

MANIFOLD

DART AEROSPACE

TITLE: ENGINE WASH UNIT

DWG NO. HT-500-CWA-006 REV 10

MAT'L	6061
HEAT TREAT	
FINISH	SEE -001 WELDMENT
SPEC	
DRAWN BY:	NELSON
CHECKED:	DUERFELDT
OPPS APPR:	ANDERSON
QA APPR:	LINDSAY
APPROVED:	GILBERT

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
.XXX ± .005 FRACTIONS ± 1/8
.XX ± .01 ANGLES ±.5°
.X ± .1 SURFACES = 125√

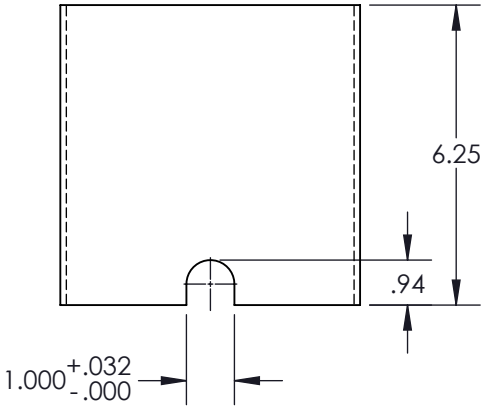
1. BREAK ALL SHARP EDGES .015 x 45° OR .015R
2. DIMENSIONAL LIMITS APPLY AFTER PLATING
3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009

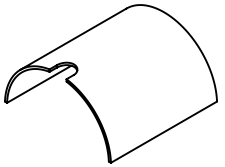
USED ON MODEL

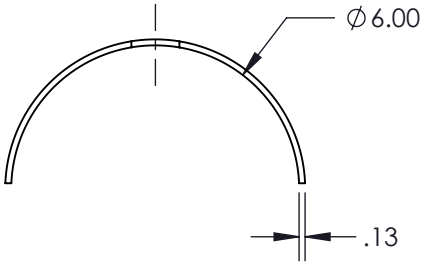
SCALE 1:1 | DATE 6/30/2014 | SHEET 10 OF 32

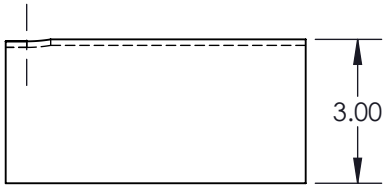
REVISIONS					
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
7	14-0131	**-007** CH'D DIMS WAS .125 IS (.125), WAS Ø6 IS (Ø6). ADDED NOTE.	7/28/2014	DPD	RJC
9	16-0205	**-007** CH'D DIM WAS (.125) IS .13, WAS (Ø6) IS Ø6.00, CH'D DWG TO SHEET METAL TOLERANCE.	11/21/2016	RJC	JAG

SEE ATTACHED DEVIATION









NOTE:
RAW MATERIAL MAKES 2 PARTS.

-007

HOSE HANGER

DART AEROSPACE

TITLE	ENGINE WASH UNIT
DWG NO.	HT-500-CWA-007
REV	10
MAT'L	6061
HEAT TREAT	
FINISH	SEE -001 WELDMENT
SPEC	
DRAWN BY:	NELSON
CHECKED:	DUERFELDT
OPPS APPR:	ANDERSON
QA APPR:	LINDSAY
APPROVED:	GILBERT
SCALE	1:4
DATE	6/30/2014
SHEET	SHEET 11 OF 32

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
.XXX ± .010 FRACTIONS ± 1/8
.XX ± .03 ANGLES ±1°
.X ± .1 SURFACES = 125

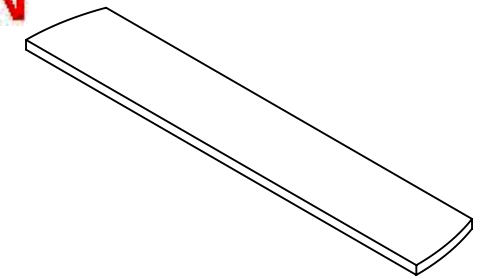
1. BREAK ALL SHARP EDGES .015 x 45° OR .015R
2. DIMENSIONAL LIMITS APPLY AFTER PLATING
3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009

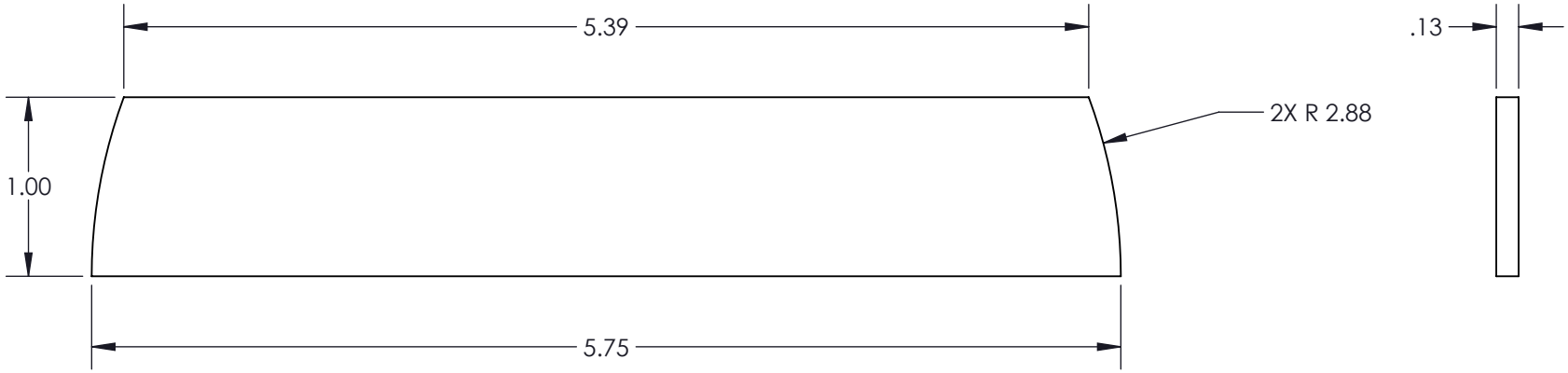
USED ON MODEL

REVISIONS

REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
9	16-0205	**-007A** CH'D DIMS WAS Ø5.75 IS 5.75, WAS (.13) IS .13, ADDED DIM 5.39, CH'D DWG TO SHEET METAL TOLERANCE.	11/21/2016	RJC	JAG

SEE ATTACHED DEVIATION





-007A

BRACE

DART AEROSPACE

TITLE: ENGINE WASH UNIT

DWG NO. HT-500-CWA-007A REV 10

MAT'L	6061
HEAT TREAT	
FINISH	SEE -001 WELDMENT
SPEC	
DRAWN BY:	NELSON
CHECKED:	DUERFELDT
OPPS APPR:	ANDERSON
QA APPR:	LINDSAY
APPROVED:	GILBERT

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
.XXX ± .010 FRACTIONS ± 1/8
.XX ± .03 ANGLES ±1°
.X ± .1 SURFACES = 125

1. BREAK ALL SHARP EDGES .015 x 45° OR .015R
2. DIMENSIONAL LIMITS APPLY AFTER PLATING
3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009

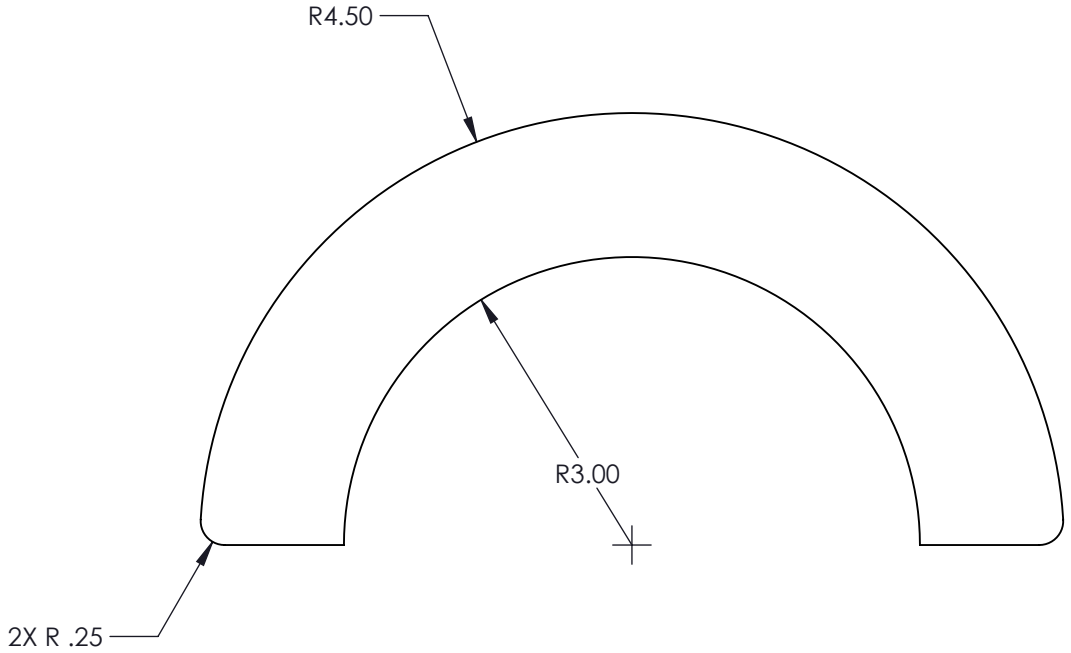
USED ON MODEL

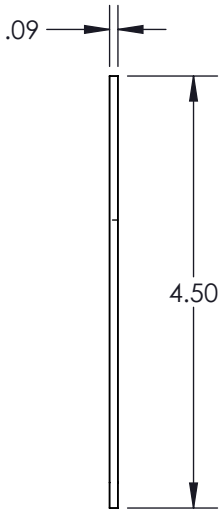
SCALE 1:1 DATE 6/30/2014 SHEET 12 OF 32

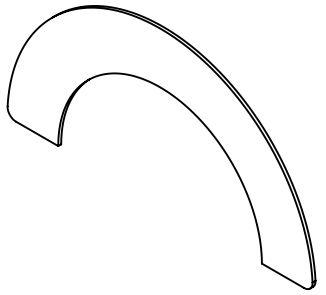
REVISIONS

REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
7	14-0131	**-008** CH'D DIM WAS .087 IS (.087).	7/28/2014	DJN	RJC
9	16-0205	**-008** CH'D DIM WAS (.087) IS .09, CH'D DWG TO SHEET METAL TOLERANCE.	11/21/2016	RJC	JAG

SEE ATTACHED DEVIATION







-008

HANGER RIM

DART AEROSPACE

TITLE: ENGINE WASH UNIT

DWG NO. HT-500-CWA-008 REV 10

MAT'L	6061
HEAT TREAT	
FINISH	SEE -001 WELDMENT
SPEC	
DRAWN BY:	NELSON
CHECKED:	DUERFELDT
OPPS APPR:	ANDERSON
QA APPR:	LINDSAY
APPROVED:	GILBERT

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
.XXX ± .010 FRACTIONS ± 1/8
.XX ± .03 ANGLES ±1°
.X ± .1 SURFACES = 125

1. BREAK ALL SHARP EDGES .015 x 45° OR .015R
2. DIMENSIONAL LIMITS APPLY AFTER PLATING
3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009

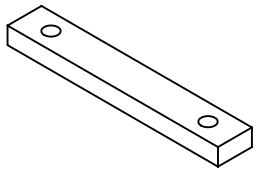
USED ON MODEL

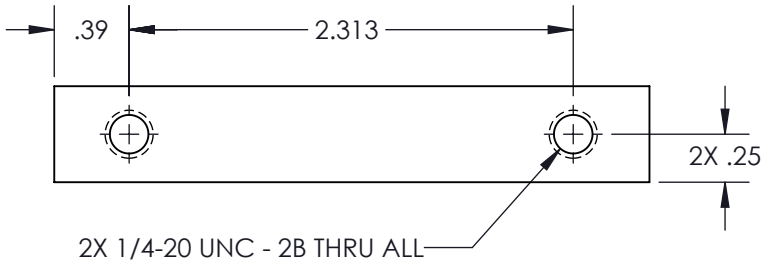
SCALE 1:2 DATE 6/30/2014 SHEET 13 OF 32

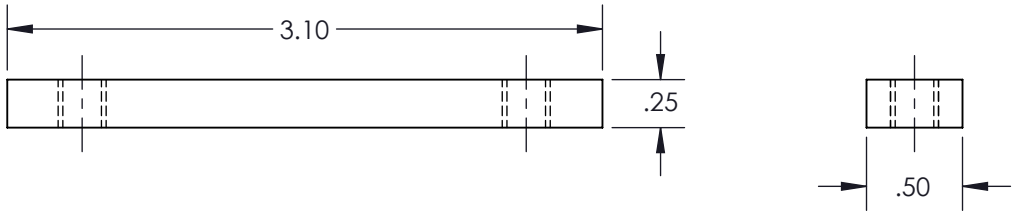
REVISIONS

REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
7	14-0131	**-012** CH'D DIM WAS .25 IS 2X .25, WAS .25 IS (.25).	7/28/2014	DPD	RJC
9	16-0205	**-012** CH'D DIM WAS (.25) IS .25, WAS 2.31 IS 2.313, CH'D DWG TO SHEET METAL TOLERANCE.	11/21/2016	RJC	JAG

SEE ATTACHED DEVIATION







-012

BOX MT BAR

DART AEROSPACE

TITLE: ENGINE WASH UNIT

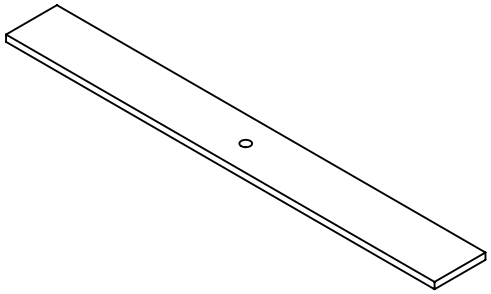
DWG NO. HT-500-CWA-012 REV 10

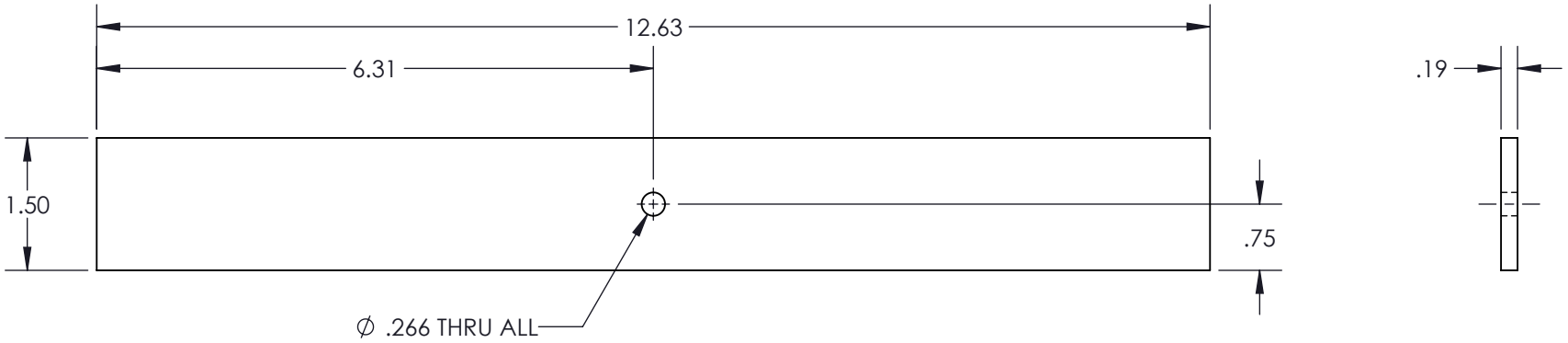
MAT'L 6061	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
HEAT TREAT	.XXX ± .010 FRACTIONS ± 1/8
FINISH	.XX ± .03 ANGLES ±1°
SPEC	.X ± .1 SURFACES = 125
DRAWN BY: NELSON	1. BREAK ALL SHARP EDGES .015 x 45° OR .015R
CHECKED: DUERFELDT	2. DIMENSIONAL LIMITS APPLY AFTER PLATING
OPPS APPR: ANDERSON	3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009
QA APPR: LINDSAY	USED ON MODEL
APPROVED: GILBERT	
SCALE 1:1	DATE 6/27/2014

REVISIONS

REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
7	14-0131	**-013** CH'D DIM WAS .188 IS (.188).	9/11/2014	DJN	RJC
9	16-0205	**-013** CH'D DIMS WAS (1.50) IS 1.50, WAS (1.88) IS .19, CH'D DWG TO SHEET METAL TOLERANCE.	11/21/2016	RJC	JAG

SEE ATTACHED DEVIATION





-013

BAND MOUNT

DART AEROSPACE

TITLE: ENGINE WASH UNIT

DWG NO. HT-500-CWA-013 REV 10

MAT'L	6061
HEAT TREAT	
FINISH	SEE -001 WELDMENT
SPEC	
DRAWN BY:	NELSON
CHECKED:	DUERFELDT
OPPS APPR:	ANDERSON
QA APPR:	LINDSAY
APPROVED:	GILBERT

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
.XXX ± .010 FRACTIONS ± 1/8
.XX ± .03 ANGLES ±1°
.X ± .1 SURFACES = 125

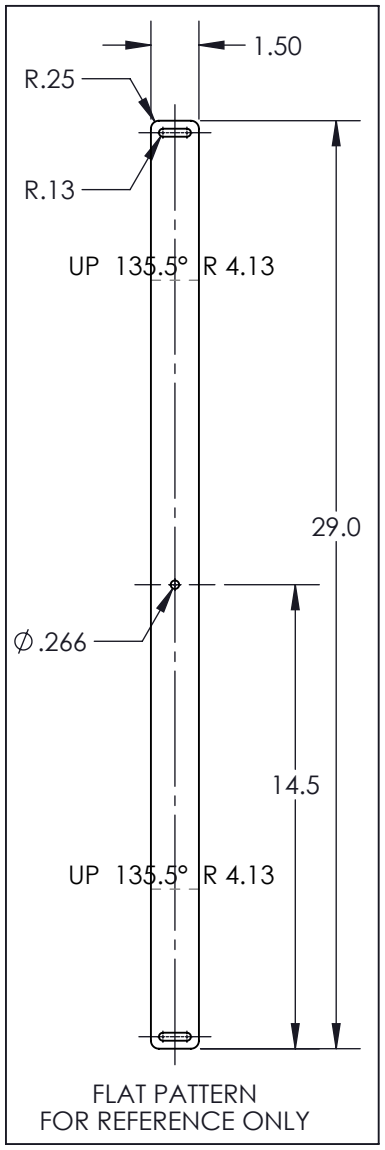
1. BREAK ALL SHARP EDGES .015 x 45° OR .015R
2. DIMENSIONAL LIMITS APPLY AFTER PLATING
3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009

USED ON MODEL

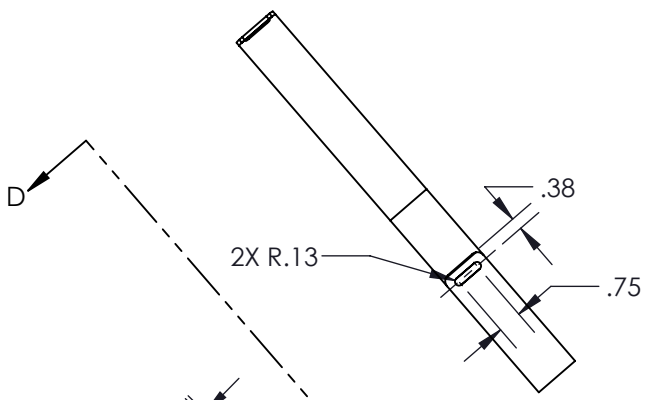
SCALE 1:2 DATE 6/30/2014 SHEET 15 OF 32

REVISIONS

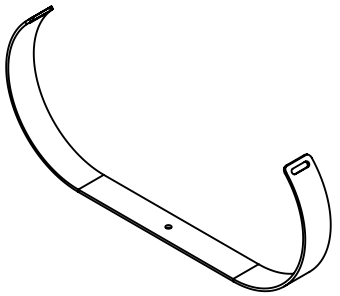
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
7	14-0131	**-014** CH'D DIMS WAS .125 IS (.125), WAS 1.50 IS (1.50).	9/11/2014	DJN	RJC
9	16-0205	**-014** CH'D DIM WAS (.125) IS .13, WAS (1.50) IS 1.50, ADDED DIM 1.50, Ø.266 THRU, CH'D DWG TO SHEET METAL TOLERANCE.	11/21/2016	RJC	JAG
10	17-0058	**-014** ADDED DIM 2X R.13.	3/6/2017	DPD	JAG

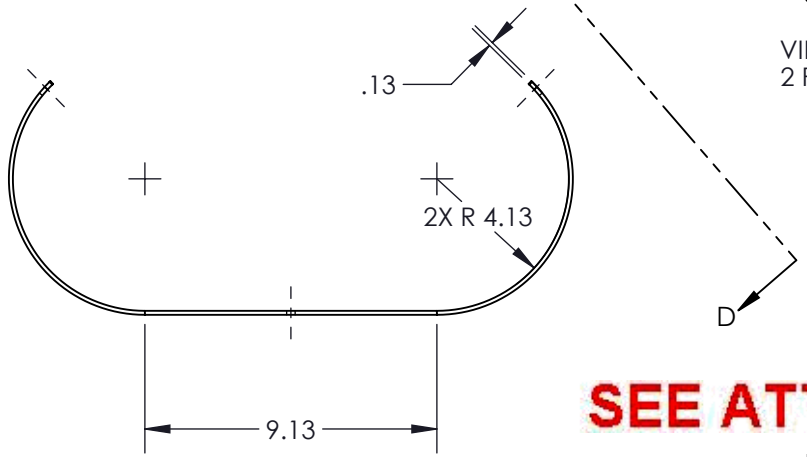


FLAT PATTERN
FOR REFERENCE ONLY

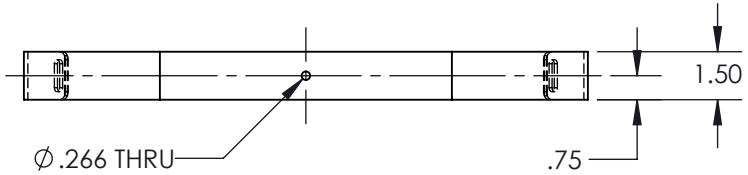


VIEW D-D
2 PLACES





SEE ATTACHED DEVIATION



(-014)

TANK BAND

DART AEROSPACE

TITLE: ENGINE WASH UNIT

DWG NO. HT-500-CWA-014 REV 10

MAT'L 6061	
HEAT TREAT	
FINISH SEE -001 WELDMENT	
SPEC	
DRAWN BY:	NELSON
CHECKED:	DUERFELDT
OPPS APPR:	ANDERSON
QA APPR:	LINDSAY
APPROVED:	GILBERT

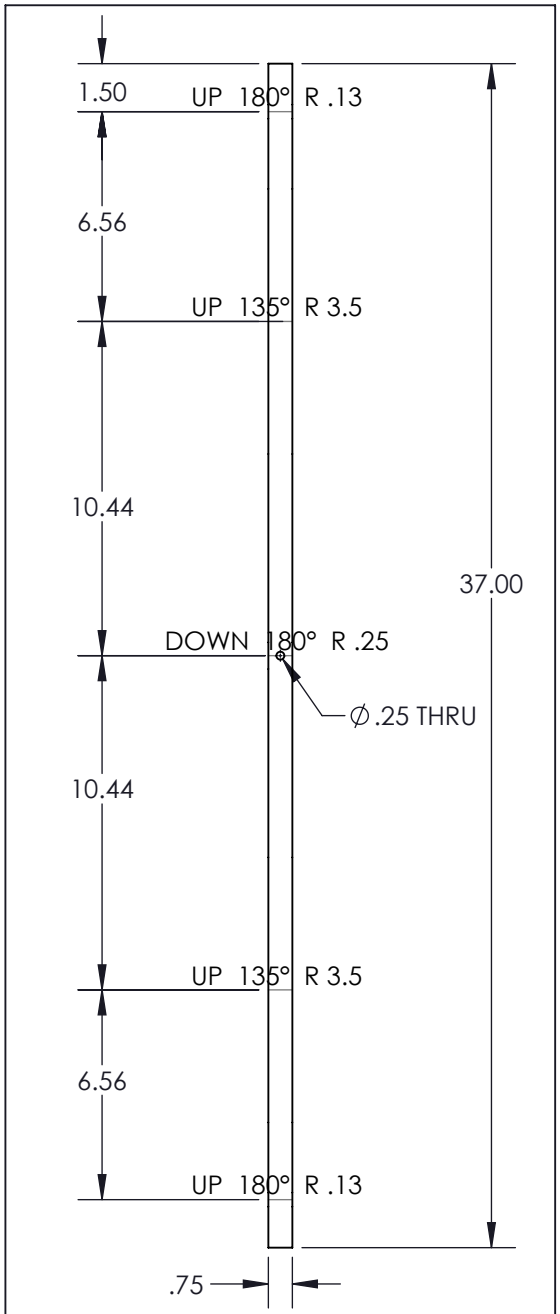
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
.XXX ± .010 FRACTIONS ± 1/8
.XX ± .03 ANGLES ±1°
.X ± .1 SURFACES = 125

1. BREAK ALL SHARP EDGES .015 x 45° OR .015R
2. DIMENSIONAL LIMITS APPLY AFTER PLATING
3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009

USED ON MODEL

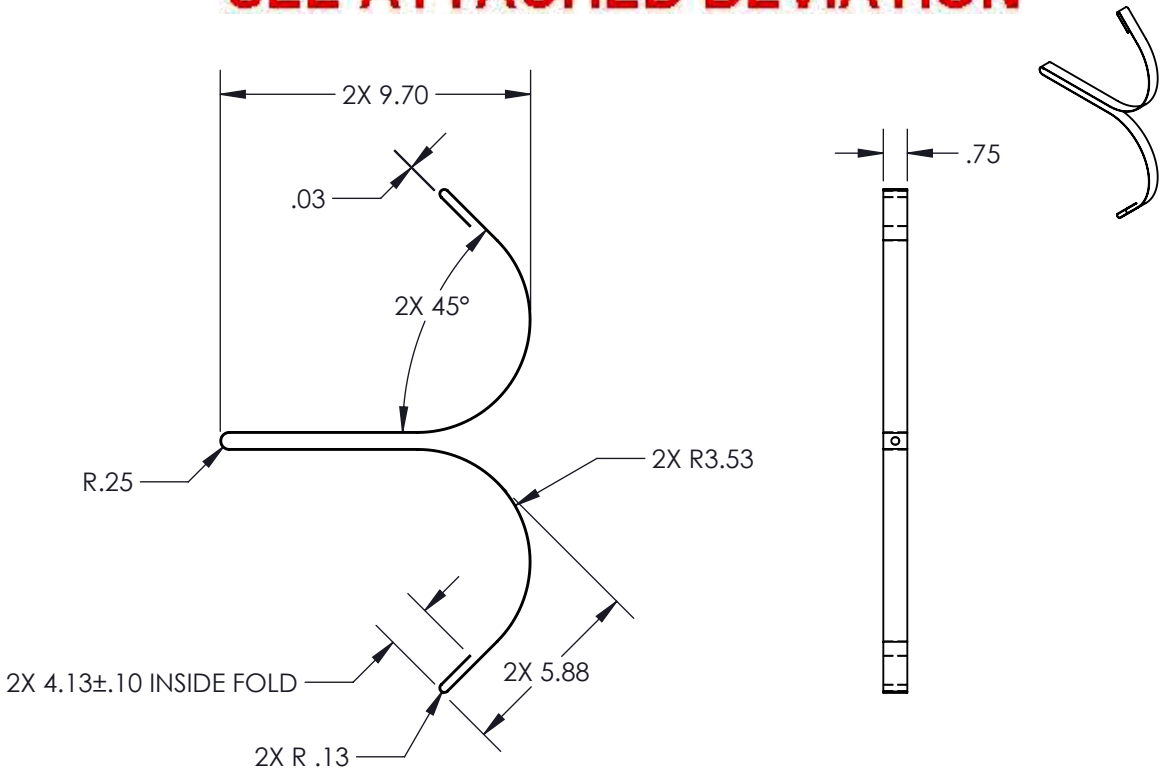
SCALE 1:6 | DATE 7/8/2014 | SHEET 16 OF 32

REVISIONS					
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
7	14-0131	**-016** ADDED DIMS 2X R.13, R.25, AND .75.	7/28/2014	DPD	RJC
9	16-0205	**-016** CH'D DIMS WAS (.031) IS .03, WAS (.75) IS .75, WAS 2X 4.13 ±.1 IS 2X 4.13 ±.10, ADDED DIMS 2X 9.70. 2X 45°, 2X R3.53, 2X 5.88, CH'D DWG TO SHEET METAL TOLERANCE.	11/21/2016	RJC	JAG



FLAT PATTERN FOR REFERENCE ONLY

SEE ATTACHED DEVIATION



(-016)

FLUID TANKS CLAMP BAND

DART AEROSPACE

TITLE	ENGINE WASH UNIT
DWG NO.	HT-500-CWA-016
REV	10
MAT'L	SS
HEAT TREAT	
FINISH	
SPEC	
DRAWN BY:	NELSON
CHECKED:	DUERFELDT
OPPS APPR:	ANDERSON
QA APPR:	LINDSAY
APPROVED:	GILBERT
SCALE	1:6
DATE	6/30/2014
SHEET	SHEET 17 OF 32

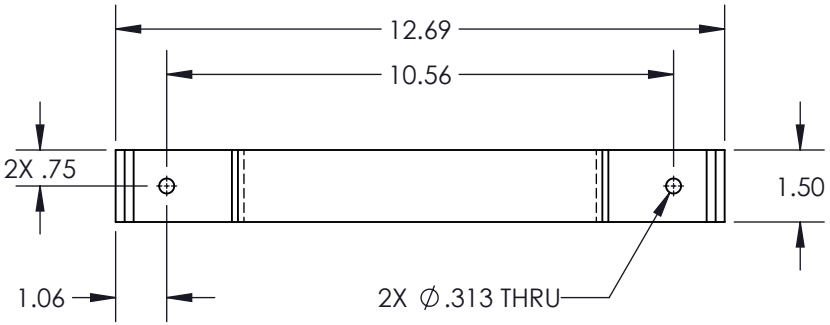
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
.XXX ± .010 FRACTIONS ± 1/8
.XX ± .03 ANGLES ±1°
.X ± .1 SURFACES = 125

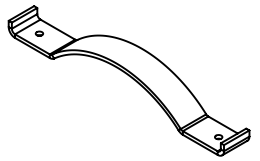
1. BREAK ALL SHARP EDGES .015 x 45° OR .015R
2. DIMENSIONAL LIMITS APPLY AFTER PLATING
3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009

USED ON MODEL

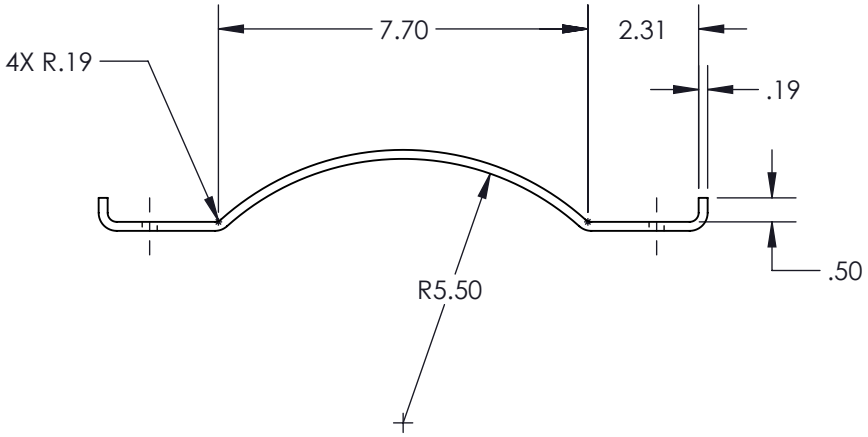
REVISIONS

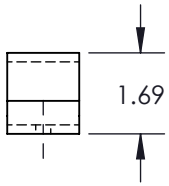
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
7	14-0131	**-017** ADDED MISSING DIMS 1.06, 4X R.19, CH'D DIMS WAS 7.75 IS 7.70, WAS .188 IS (.188).	7/28/2014	DPD	RJC
9	16-0205	**.017** CH'D DIMS WAS (1.50) IS 1.50, WAS (.188) IS .19, WAS (1.69) IS 1.69, CH'D DWG TO SHEET METAL TOLERANCE.	11/21/2016	RJC	JAG





SEE ATTACHED DEVIATION





-017

AIR TANK CRADLE

DART AEROSPACE

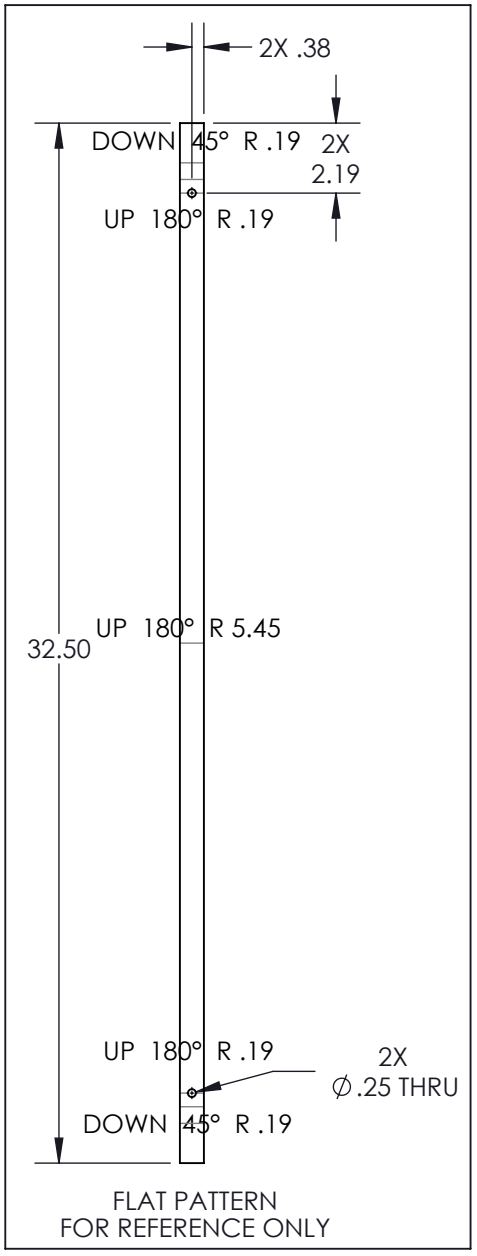
TITLE: ENGINE WASH UNIT

DWG NO. HT-500-CWA-017 REV 10

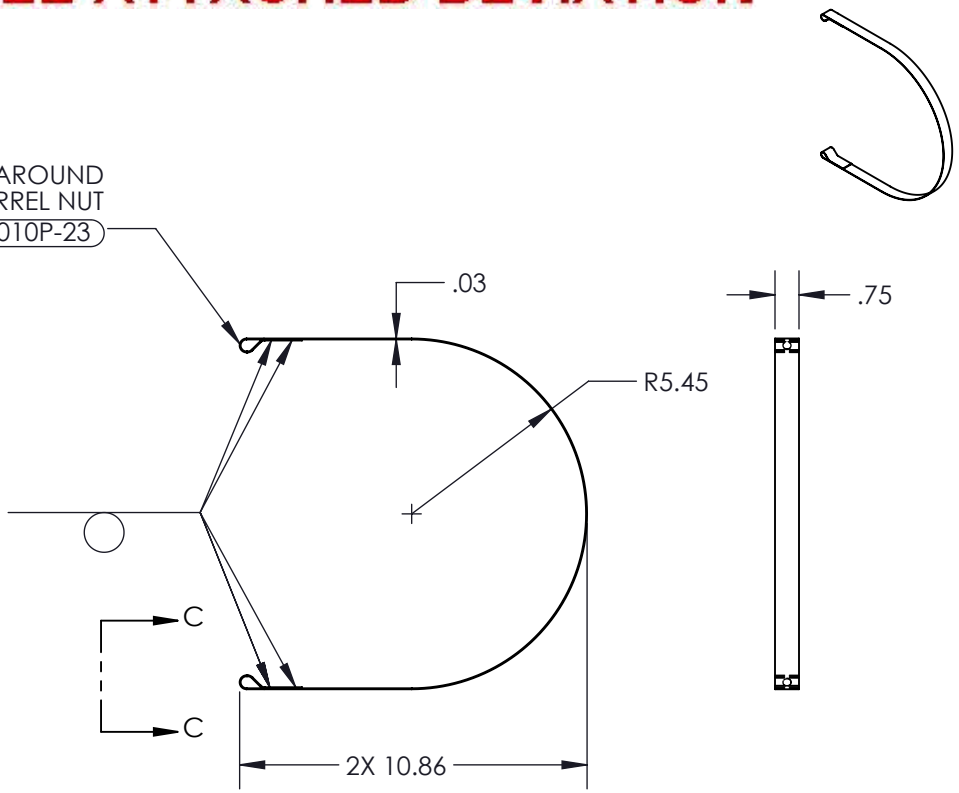
MAT'L 5052	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
HEAT TREAT	.XXX ± .010 FRACTIONS ± 1/8
FINISH SEE -001 WELDMENT	.XX ± .03 ANGLES ±1°
SPEC	.X ± .1 SURFACES = 125
DRAWN BY: NELSON	1. BREAK ALL SHARP EDGES .015 x 45° OR .015R
CHECKED: DUERFELDT	2. DIMENSIONAL LIMITS APPLY AFTER PLATING
OPPS APPR: ANDERSON	3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009
QA APPR: LINDSAY	USED ON MODEL
APPROVED: GILBERT	
SCALE 1:4	DATE 6/30/2014

REVISIONS					
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
9	16-0205	**-018** CH'D DIM WAS (.031) IS .03, WAS (.75) IS .75, ADDED DIMS R5.45, 2X 10.86, ADDED VIEW C-C, CHD DWG. TO SHEET METAL TOLERANCE.	11/21/2016	RJC	JAG

SEE ATTACHED DEVIATION



FLAT PATTERN
FOR REFERENCE ONLY



VIEW C-C
SCALE 1 : 2
2 PLACES

-018

AIR TANK BANDS

DART AEROSPACE

TITLE: ENGINE WASH UNIT

DWG NO. HT-500-CWA-018 REV 10

MAT'L	S. S.
HEAT TREAT	
FINISH	
SPEC	
DRAWN BY:	NELSON
CHECKED:	DUERFELDT
OPPS APPR:	ANDERSON
QA APPR:	LINDSAY
APPROVED:	GILBERT

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
.XXX ± .010 FRACTIONS ± 1/8
.XX ± .03 ANGLES ±1°
.X ± .1 SURFACES = 125

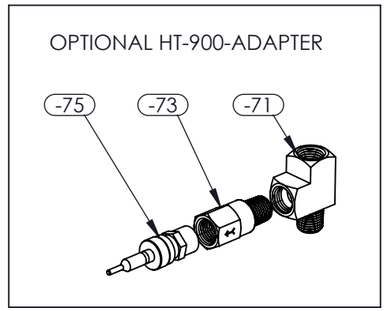
1. BREAK ALL SHARP EDGES .015 x 45° OR .015R
2. DIMENSIONAL LIMITS APPLY AFTER PLATING
3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009

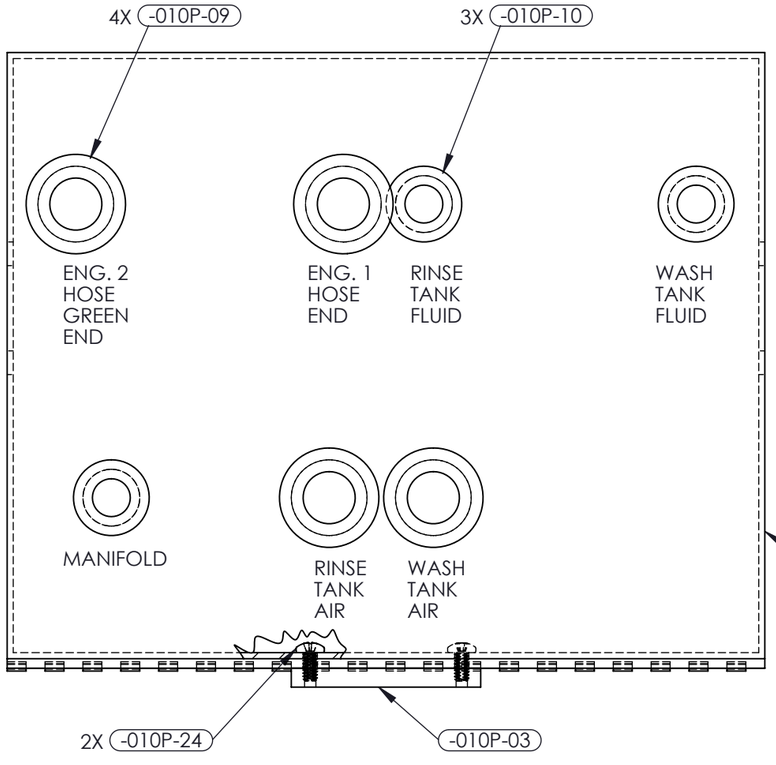
USED ON MODEL

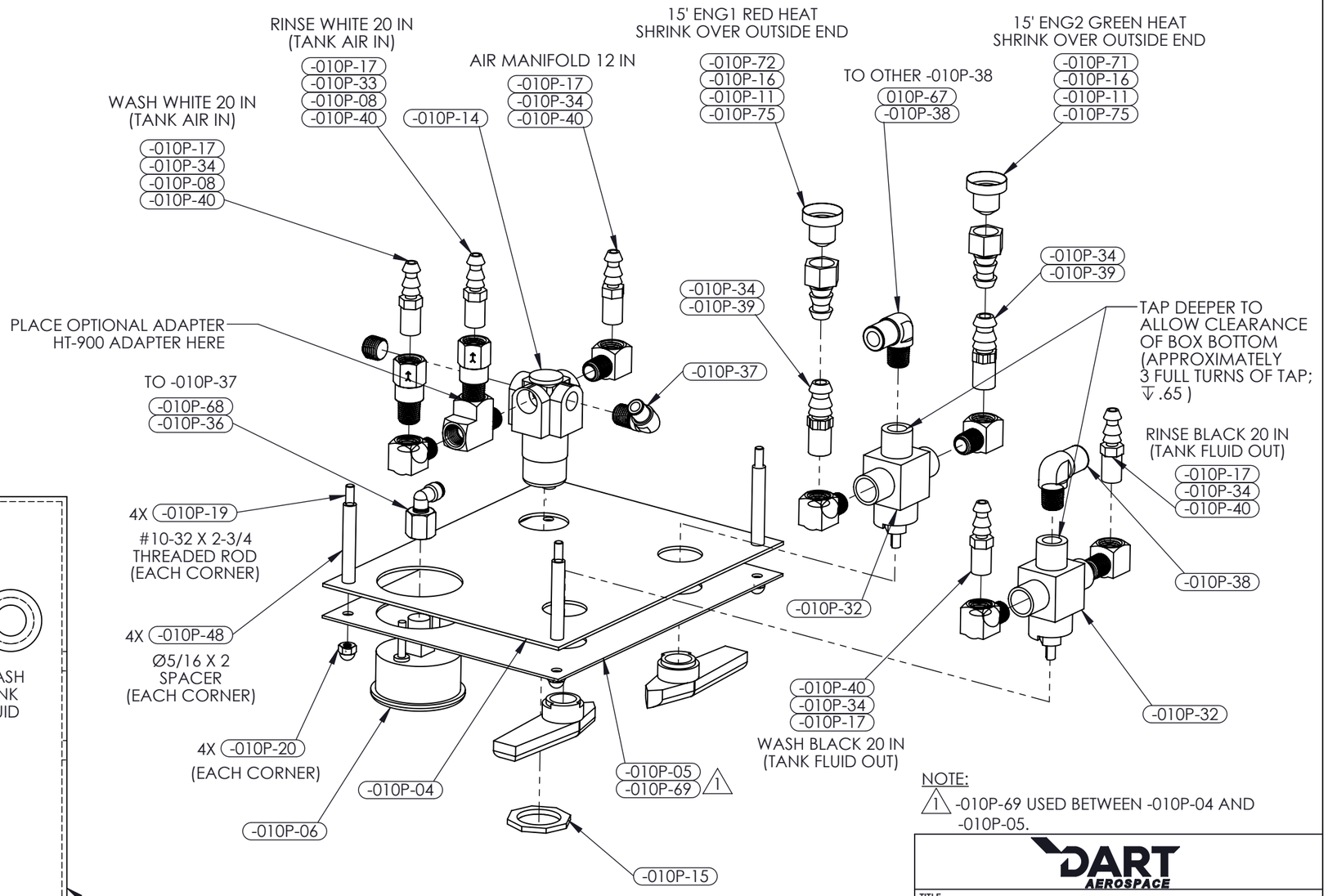
SCALE 1:6 | DATE 6/30/2014 | SHEET 19 OF 32

REVISIONS					
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
10	17-0058	**-010P** CH'D NOTE WAS TAP DEEPER TO ALLOW CLEARANCE OF BOX BOTTOM IS TAP DEEPER TO ALLOW CLEARANCE OF BOX BOTTOM (APPROXIMATELY 3 FULL TURNS OF TAP; ↧.65).	3/6/2017	DPD	JAG

SEE ATTACHED DEVIATION







NOTE:

1 -010P-69 USED BETWEEN -010P-04 AND -010P-05.

-010P

CONTROL BOX ASSEMBLY

DART AEROSPACE

TITLE: ENGINE WASH UNIT

DWG NO.: HT-500-CWA-010P | REV: 10

MAT'L	
HEAT TREAT	
FINISH	
SPEC	
DRAWN BY:	NELSON
CHECKED:	DUERFELDT
OPPS APPR:	ANDERSON
QA APPR:	LINDSAY
APPROVED:	GILBERT

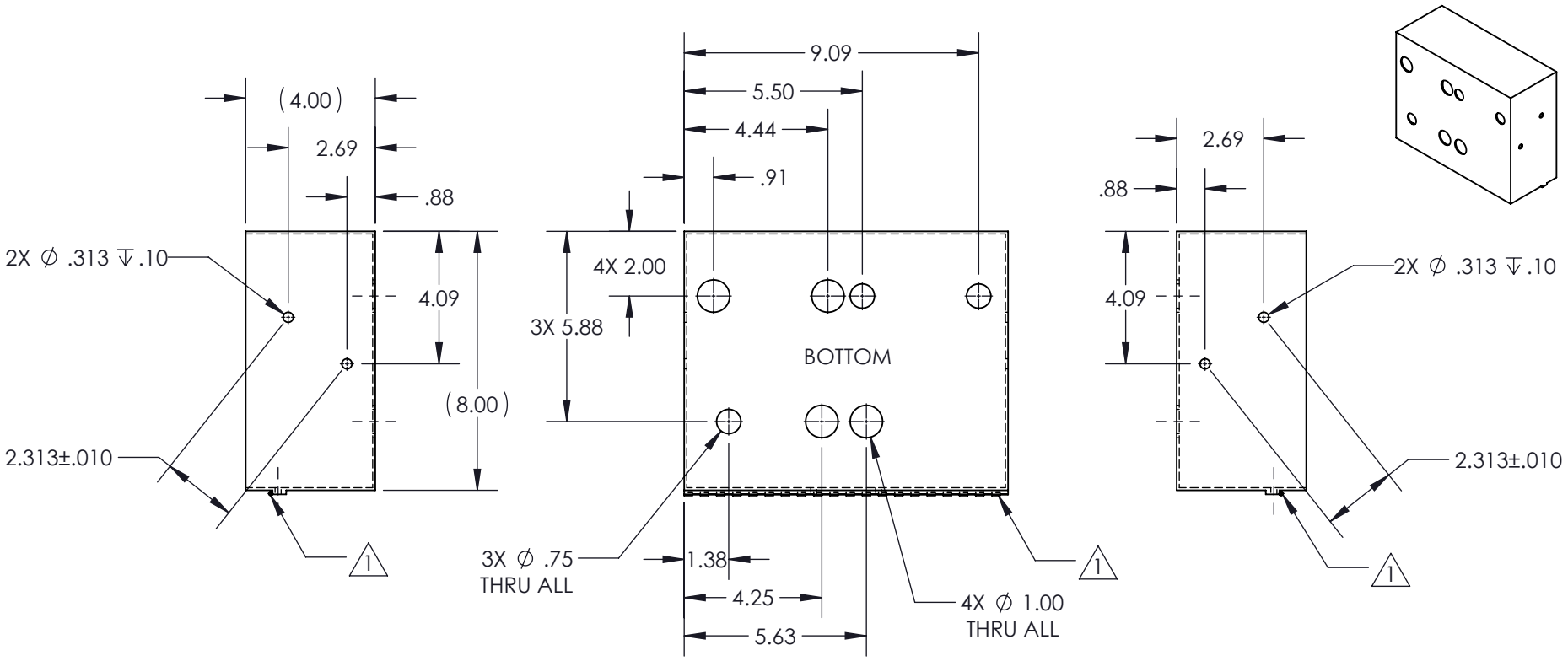
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
FRACTIONS ± 1/8
.XXX ± .005
.XX ± .01 ANGLES ±.5°
.X ± .1 SURFACES = 125
1. BREAK ALL SHARP EDGES .015 x 45° OR .015R
2. DIMENSIONAL LIMITS APPLY AFTER PLATING
3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009

USED ON MODEL

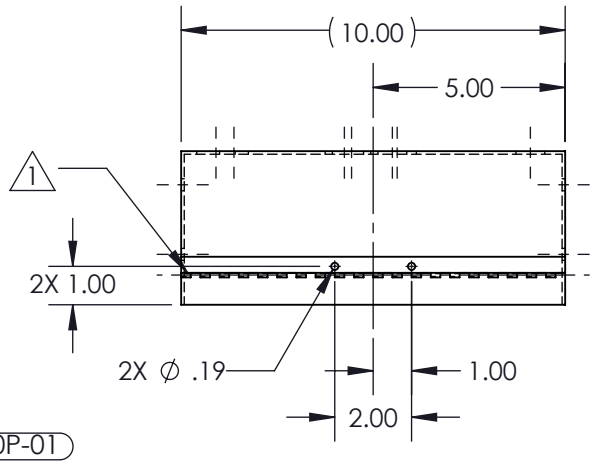
SCALE 1:3 | DATE 7/15/2014 | SHEET 20 OF 32

REVISIONS

REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
7	14-0131	**-010P-01** CH'D DIM WAS 3X Ø.81 IS 3X Ø.75.	7/28/2014	DJN	RJC
9	16-0205	**-010P-01** DELETED DIM 2.66, ADDED DIM 2.313 ±.010, CH'D DIM WAS 2X Ø.313 THRU ALL IS 2X Ø.313 ↧.10.	11/21/2016	RJC	JAG



SEE ATTACHED DEVIATION



-010P-01

CONTROL BOX

NOTE:

1 NOTE HINGE POSITION.

DART AEROSPACE

TITLE: ENGINE WASH UNIT

DWG NO. HT-500-CWA-010P-01 REV 10

MAT'L	ALUMINUM
HEAT TREAT	
FINISH	
SPEC	
DRAWN BY:	NELSON
CHECKED:	DUERFELDT
OPPS APPR:	ANDERSON
QA APPR:	LINDSAY
APPROVED:	GILBERT

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
.XXX ± .005 FRACTIONS ± 1/8
.XX ± .01 ANGLES ±.5°
.X ± .1 SURFACES = 125

1. BREAK ALL SHARP EDGES .015 x 45° OR .015R
2. DIMENSIONAL LIMITS APPLY AFTER PLATING
3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009

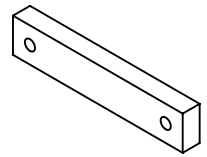
USED ON MODEL

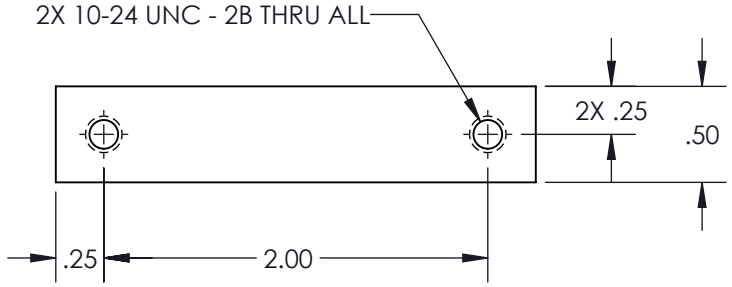
SCALE 1:5 | DATE 7/8/2014 | SHEET 21 OF 32

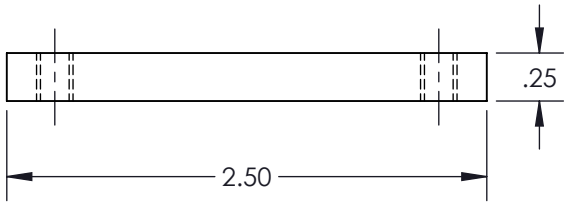
REVISIONS

REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
7	14-0131	**-010P-03** CH'D DIMS WAS .25 IS 2X .25, WAS .25 IS (.25).	7/28/2014	DJN	RJC
9	16-0205	**-010P-03** CH'D DIM WAS (.25) IS .25, ADDED FINISH CLEAR ANODIZE MIL-A-8625F-TYPE II CLASS I.	11/21/2016	RJC	JAG

SEE ATTACHED DEVIATION







-010P-03

HINGE STOP

DART AEROSPACE

TITLE: ENGINE WASH UNIT

DWG NO. HT-500-CWA-010P-03 REV 10

MAT'L	6061
HEAT TREAT	
FINISH	CLEAR ANODIZE
SPEC	MIL-A-8625F, TYPE II, CLASS I
DRAWN BY:	NELSON
CHECKED:	DUERFELDT
OPPS APPR:	ANDERSON
QA APPR:	LINDSAY
APPROVED:	GILBERT

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
.XXX ± .005 FRACTIONS ± 1/8
.XX ± .01 ANGLES ±.5°
.X ± .1 SURFACES = 125
1. BREAK ALL SHARP EDGES .015 x 45° OR .015R
2. DIMENSIONAL LIMITS APPLY AFTER PLATING
3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009

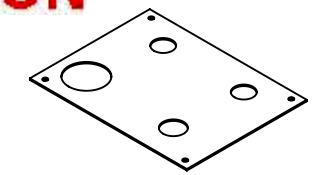
USED ON MODEL

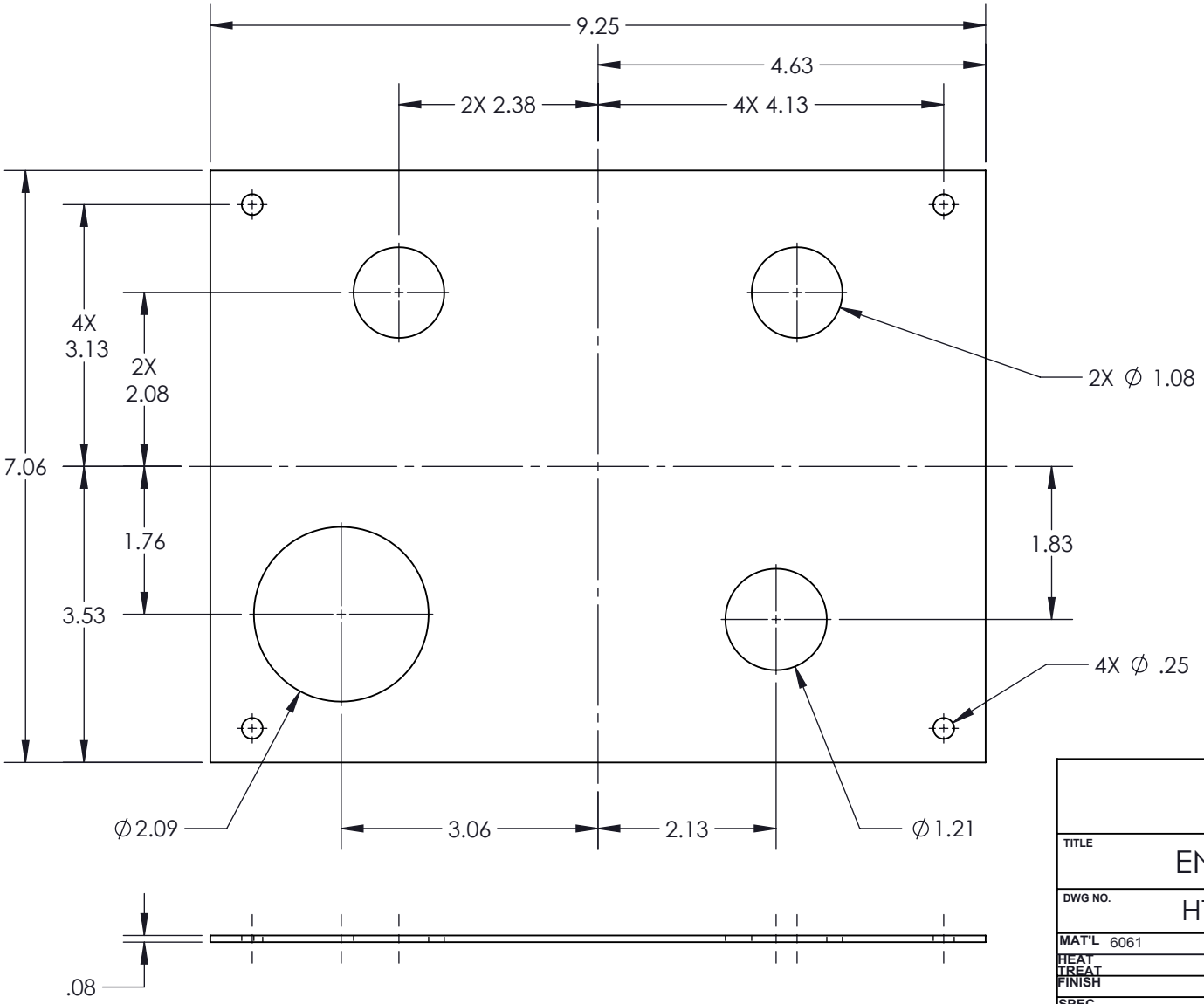
SCALE 1:1 DATE 6/30/2014 SHEET 22 OF 32

REVISIONS

REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
9	16-0205	**-010P-04** CH'D DIM WAS (.08) IS .08.	11/21/2016	RJC	JAG

SEE ATTACHED DEVIATION





-010P-04

PANEL PLATE

DART AEROSPACE

TITLE: ENGINE WASH UNIT

DWG NO. HT-500-CWA-010P-04 REV 10

MAT'L	6061
HEAT TREAT	
FINISH	
SPEC	
DRAWN BY:	NELSON
CHECKED:	DUERFELDT
OPPS APPR:	ANDERSON
QA APPR:	LINDSAY
APPROVED:	GILBERT

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
.XXX ± .005 FRACTIONS ± 1/8
.XX ± .01 ANGLES ±.5°
.X ± .1 SURFACES = 125

1. BREAK ALL SHARP EDGES .015 x 45° OR .015R
2. DIMENSIONAL LIMITS APPLY AFTER PLATING
3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009

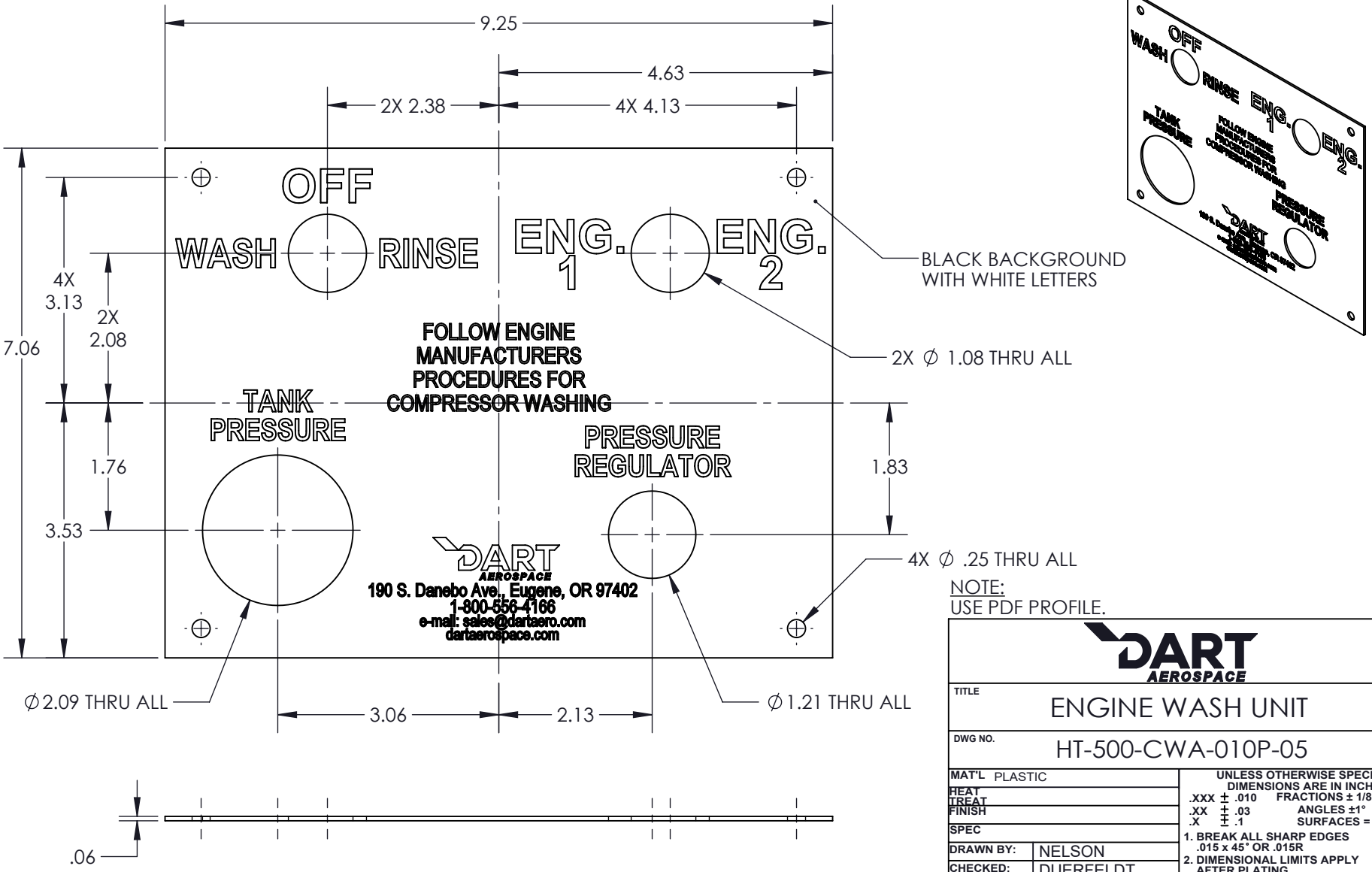
USED ON MODEL

SCALE 1:2 DATE 6/30/2014 SHEET 23 OF 32

SEE ATTACHED DEVIATION

REVISIONS

REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
9	16-0205	**-010P-05** DELETED DIM 4X .03 X 45°, CH'D DIM (.061) IS .06, WAS 2X Ø1.08 IS 2X Ø1.08 THRU ALL, WAS Ø2.09 IS Ø2.09 THRU ALL, WAS Ø1.21 IS Ø1.21 THRU ALL, WAS 4X Ø.25 IS 4X Ø.25 THRU ALL, CH'D NOTE WAS TOP IS TEXTURED BLACK WITH WHITE PLASTIC BACKING. ALL LETTERING IS CUT TO THE WHITE PLASTIC, ↧.02 IS BLACK BACKGROUND WITH WHITE LETTERS, CH'D P/N WAS ROWMARK #822422 IS (MULTI-CRAFT #LM922402), CH'D DWG TO SHEET METAL TOLERENCE.	11/21/2016	RJC	JAG
10	17-0058	**-010P-05** CH'D DIMS WAS 2.08 IS 2X 2.08, WAS 3.13 IS 4X 3.13.	5/22/2017	DPD	JAG



NOTE:
USE PDF PROFILE.

-010P-05

CONTROL PANEL

DART AEROSPACE

TITLE: ENGINE WASH UNIT

DWG NO. HT-500-CWA-010P-05 REV 10

MAT'L	PLASTIC
HEAT TREAT	
FINISH	
SPEC	
DRAWN BY:	NELSON
CHECKED:	DUERFELDT
OPPS APPR:	ANDERSON
QA APPR:	LINDSAY
APPROVED:	GILBERT

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
.XXX ± .010 FRACTIONS ± 1/8
.XX ± .03 ANGLES ±1°
.X ± .1 SURFACES = 125√

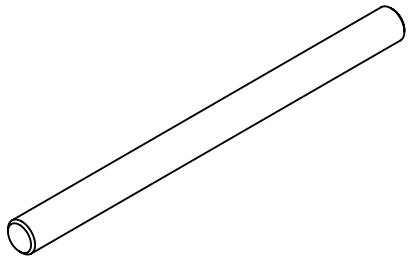
1. BREAK ALL SHARP EDGES .015 x 45° OR .015R
2. DIMENSIONAL LIMITS APPLY AFTER PLATING
3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009

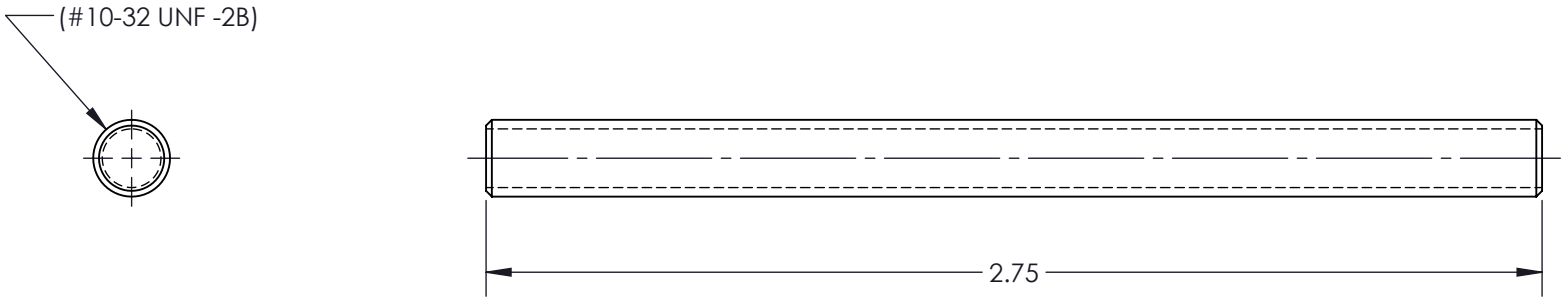
USED ON MODEL

SCALE 1:2 | DATE 6/30/2014 | SHEET 24 OF 32

REVISIONS

REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
9	16-0205	**-010P-19** ADDED DWG, CH'D B/O INFO WAS 10-32 X 2-3/4 MCMMASTER-CARR #98921A011 IS 10-32 X 2-3/4 (MCMMASTER-CARR #98921A011) MODIFIED.	11/21/2016	RJC	JAG





SEE ATTACHED DEVIATION

-010P-19

THREADED ROD

DART AEROSPACE

TITLE: ENGINE WASH UNIT

DWG NO. HT-500-CWA-010P-19 REV 10

MAT'L	SS
HEAT TREAT	
FINISH	
SPEC	
DRAWN BY:	NELSON
CHECKED:	DUERFELDT
OPPS APPR:	ANDERSON
QA APPR:	LINDSAY
APPROVED:	GILBERT

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
.XXX ± .010 FRACTIONS ± 1/8
.XX ± .03 ANGLES ±1°
.X ± .1 SURFACES = 125

1. BREAK ALL SHARP EDGES .015 x 45° OR .015R
2. DIMENSIONAL LIMITS APPLY AFTER PLATING
3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009

USED ON MODEL

SCALE 2:1 DATE 7/9/2014 SHEET 25 OF 32

REVISIONS

REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
7	14-0131	**-010P-70A** ADDED DWG.	7/28/14	DJN	RJC
9	16-0205	**-010P-70A** CH'D DWG TO SHEET METAL TOLERANCE.	11/21/2016	RJC	JAG

SEE ATTACHED DEVIATION

-010P-70A

WASH EMBLEM

DART AEROSPACE

TITLE: WASH SYSTEM

DWG NO. HT-500-CWA-010P-70A | REV 10

MAT'L VINYL
HEAT TREAT
FINISH
SPEC

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
.XXX ± .010 FRACTIONS ± 1/8
.XX ± .03 ANGLES ±1°
.X ± .1 SURFACES = 125

1. BREAK ALL SHARP EDGES .015 x 45° OR .015R
2. DIMENSIONAL LIMITS APPLY AFTER PLATING
3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009

DRAWN BY:	NELSON
CHECKED:	DUERFELDT
OPPS APPR:	ANDERSON
QA APPR:	LINDSAY
APPROVED:	GILBERT

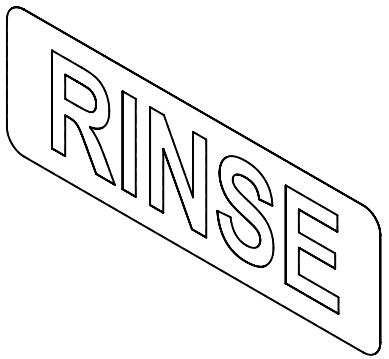
USED ON MODEL

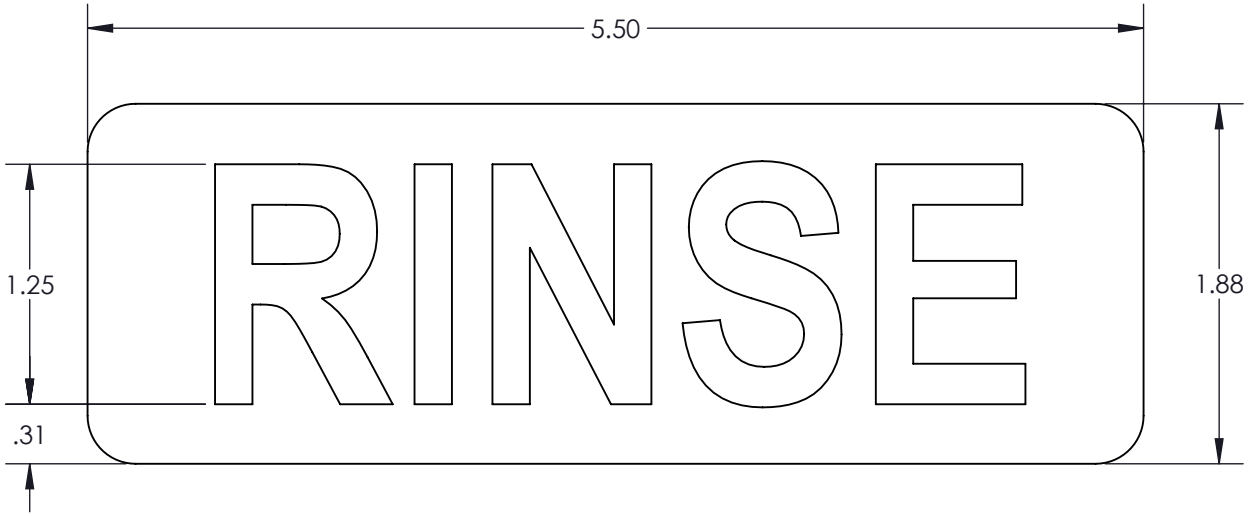
SCALE 1:1 | DATE 7/15/2014 | SHEET 26 OF 32

REVISIONS

REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
7	14-0131	**-010P-70B** ADDED DWG.	7/28/14	DJN	RJC
9	16-0205	**-010P-70B** CH'D DWG TO SHEET METAL TOLERANCE.	11/21/2016	RJC	JAG

SEE ATTACHED DEVIATION





-010P-70B

RINSE EMBLEM

DART AEROSPACE

TITLE: ENGINE WASH UNIT

DWG NO. HT-500-CWA-010P-70B | REV 10

MAT'L	VINYL
HEAT TREAT	
FINISH	
SPEC	
DRAWN BY:	NELSON
CHECKED:	DUERFELDT
OPPS APPR:	ANDERSON
QA APPR:	LINDSAY
APPROVED:	GILBERT

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
.XXX ± .010 FRACTIONS ± 1/8
.XX ± .03 ANGLES ±1°
.X ± .1 SURFACES = 125

1. BREAK ALL SHARP EDGES .015 x 45° OR .015R
2. DIMENSIONAL LIMITS APPLY AFTER PLATING
3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009

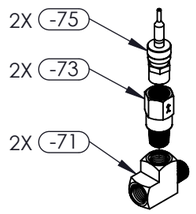
USED ON MODEL

SCALE 1:1 | DATE 7/14/2014 | SHEET 27 OF 32

SEE ATTACHED DEVIATION

Part #	UNIT QTY	Description	PG.
-001	1	CART ASSEMBLY	1
-006	1	MANIFOLD	3
-011	4	SCREW	1
-012	2	BOX MT BAR	1
-016	1	FLUID TANKS CLAMP BAND	1
-018	2	AIR TANK BANDS	1
-019	1	11 GAL SPEEDAIR TANK	1
-019A	1	AIR TANK PRESSURE GAUGE	3
-019B	1	AIR TANK MANIFOLD	3
-031	1	HEX HEAD CAP SCREW	1
-033	1	NYLOC NUT	1
-010P		CONTROL BOX ASSEMBLY	1
-010P-01	1	CONTROL BOX	2
-010P-02	2	HOFMAN LATCH	1
-010P-03	1	HINGE STOP	1
-010P-04	1	PANEL PLATE	2
-010P-05	1	CONTROL PANEL	2
-010P-06	1	100 PSI PRESSURE GUAGE	2
-010P-08	3	1/4 MIP X FIP CHECK VALVE	2, 3
-010P-09	4	GROMMET	2
-010P-10	3	GROMMET	2
-010P-11	2	PUSH LOCK ADAPTER, FEMALE	N/S
-010P-12	2	5/8 INSULATED HOSE CLAMP	1
-010P-14	1	ARROW REGULATOR	2
-010P-15	1	ARROW NUT	2
-010P-16	1	HOSE	N/S
-010P-17	1	HOSE	N/S
-010P-19	4	THREADED ROD	2
-010P-20	4	ACORN NUT	2
-010P-21	1	HEX SOCKET PLUG	2
-010P-22	1	1/4 PIPE PLUG	3
-010P-23	5	BARREL NUT	1
-010P-24	2	PAN HD MACH SCREW	1
-010P-25	1	HEX HEAD CAP SCREW	1
-010P-32	2	SWAGELOCK	2
-010P-33	2	RUN TEE	2, 3
-010P-34	6	90° ELBOW	2
-010P-36	1	90° FEMALE FITTING	2
-010P-37	1	90° FITTING	2
-010P-38	2	90° FITTING	2
-010P-39	2	PUSH LOCK ADAPTER, MALE	2
-010P-40	8	PUSH LOCK ADAPTER, MALE	2, 3
-010P-41	2	AIR QUICK DISCONNECT	1
-010P-43	2	FLUID QUICK DISCONNECT	1
-010P-48	4	SPACER	2
-010P-51	4	HEX HEAD CAP SCREW	1
-010P-52	5	WASHER	1
-010P-55	1	JOMAR BALL VALVE	3
-010P-58	1	NIPPLE	3
-010P-60	4	O-RING	1
-010P-61	4	0-RING	1
-010P-62	4	O-RING	1
-010P-63	4	O-RING	1
-010P-64	2	O-RING	1
-010P-65	2	5 GAL FLUID TANK	1

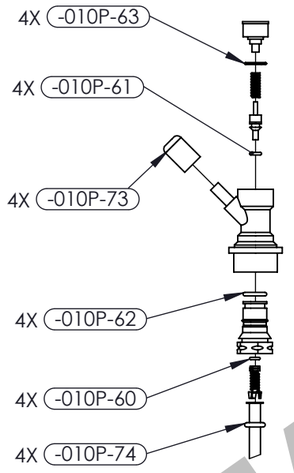
Part #	UNIT QTY	Description	PG.
-010P-65A	2	REPLACEMENT FLUID FITTING W/PACKING	1
-010P-65B	2	REPLACEMENT AIR FITTING W/PACKING	1
-010P-65C	1	REPLACEMENT TANK PRESSURE RELIEF	1
-010P-66	1	#5 DIP TUBE	1
-010P-67	1	TUBE	N/S
-010P-68	1	TUBE	N/S
-010P-70A	1	WASH EMBLEM	1
-010P-70B	1	RINSE EMBLEM	1
-010P-73	4	FERRULE	1
-010P-74	4	O-RING	1
-010P-75	2	PLASTIC PLUG	N/S



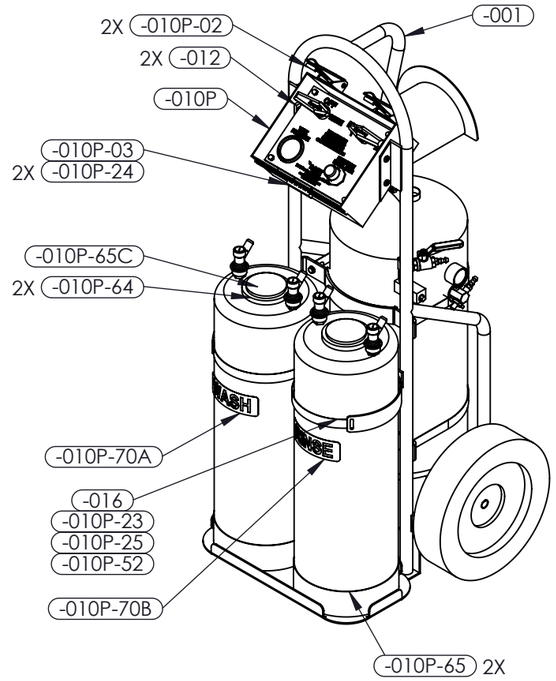
OPTIONAL HT-900 ADAPTER KIT

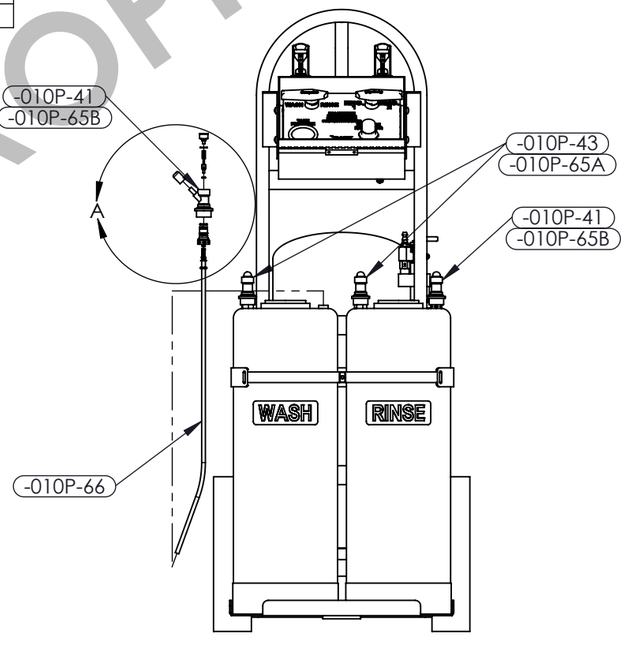
Part #	UNIT QTY	Description	PG.
-71	1	RUN TEE	2
-73	1	1/4 MIP X FIP CHECK VALVE	2
-75	1	QUICK CONNECT ADAPTER MALE	2

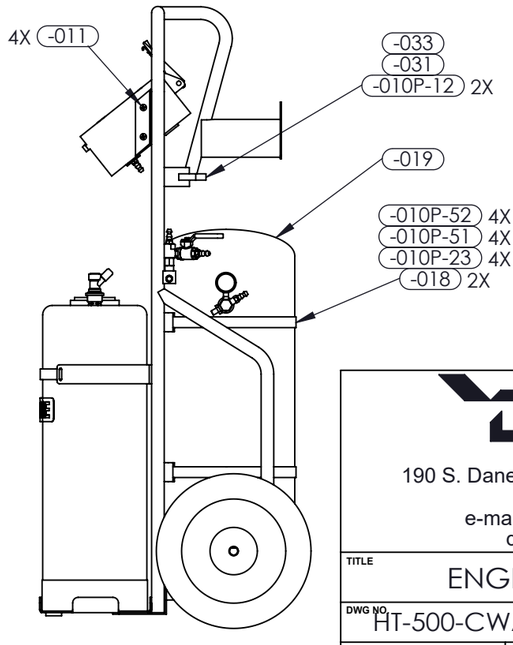
CUSTOMER LIST



DETAIL A
SCALE 1 : 4





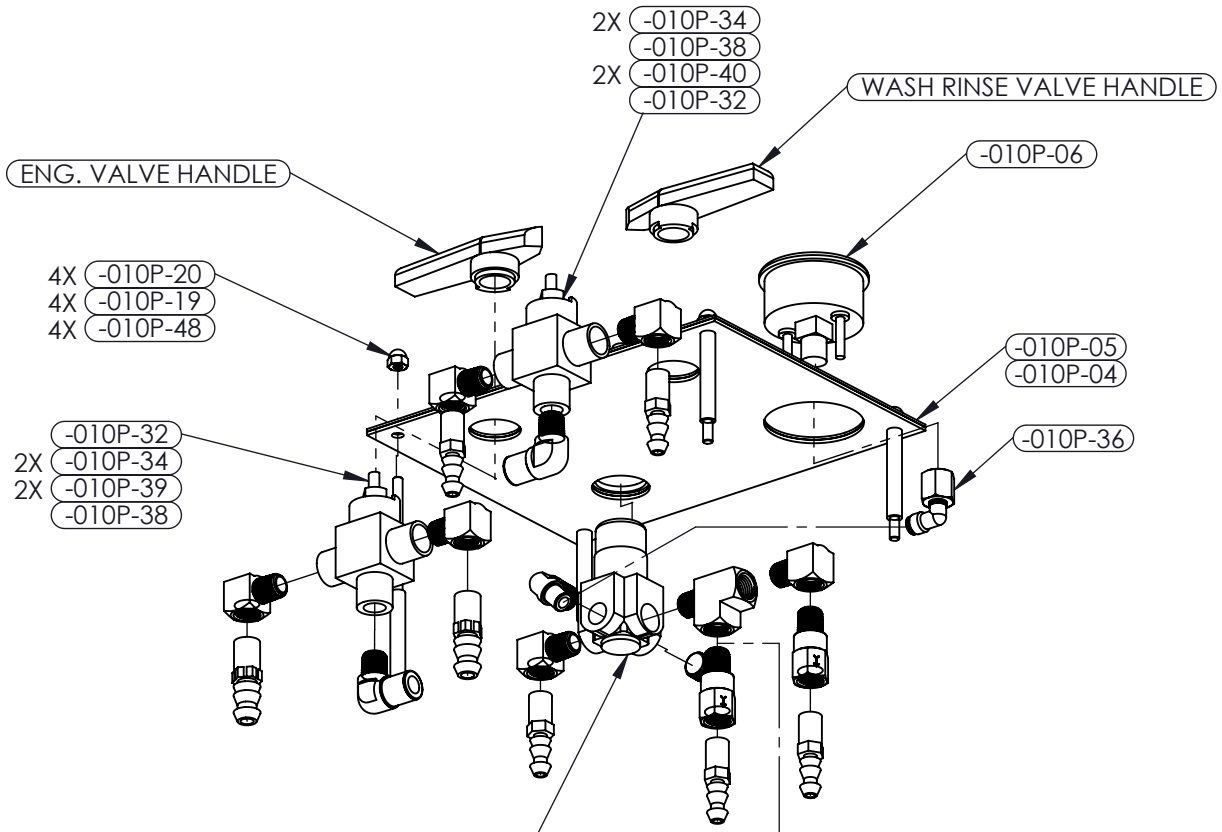


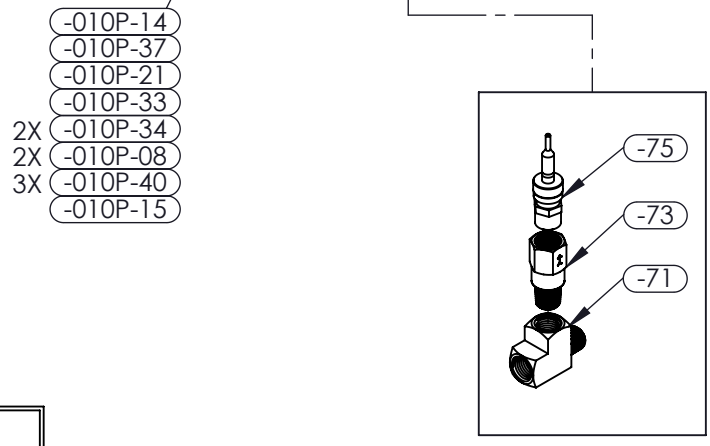
DART AEROSPACE
190 S. Danebo Ave., Eugene, OR. 97402
1-800-556-4166
e-mail: sales@dartaero.com
dartaerospace.com

TITLE: ENGINE WASH UNIT

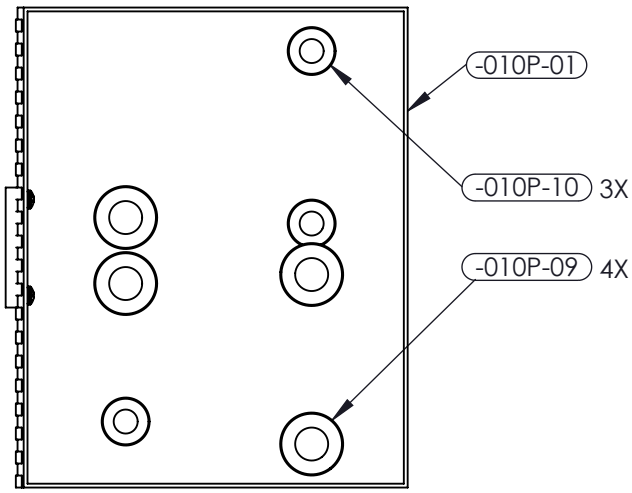
DWG NO.	REV	
HT-500-CWA	10	CUSTOMER 1 OF 1
SCALE 1:12	DATE 7/15/2014	SHEET 28 OF 32

SEE ATTACHED DEVIATION





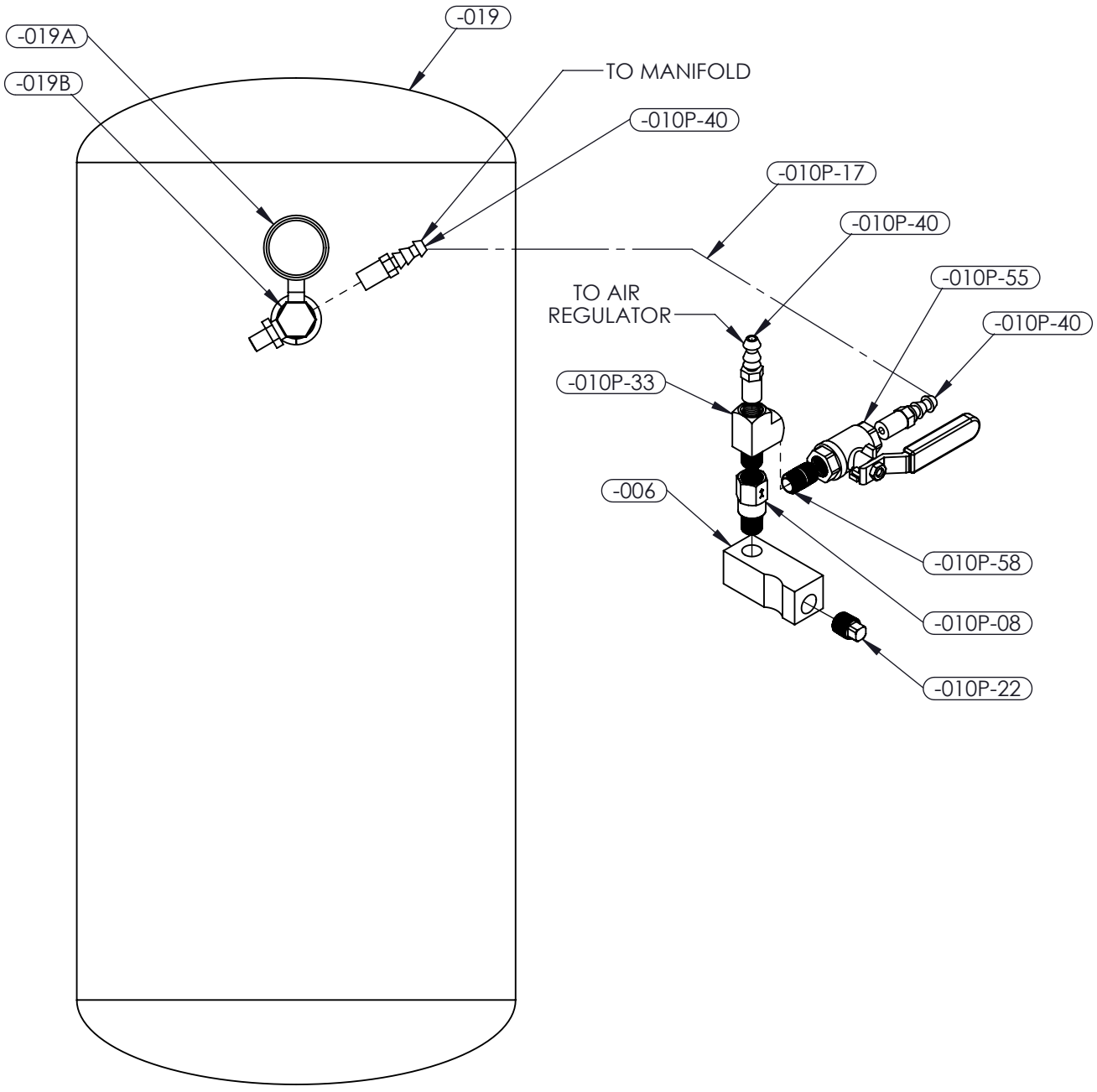
OPTIONAL
HT-900
ADAPTER



DART AEROSPACE
190 S. Danebo Ave., Eugene, OR. 97402
1-800-556-4166
e-mail: sales@dartaero.com
dartaerospace.com

TITLE: ENGINE WASH UNIT			
DWG NO. HT-500-CWA		REV 10	CUSTOMER 2 OF 5
SCALE 1:4	DATE		SHEET 29 OF 32

SEE ATTACHED DEVIATION



DART AEROSPACE
190 S. Danebo Ave., Eugene, OR. 97402
1-800-556-4166
e-mail: sales@dartaero.com
dartaerospace.com

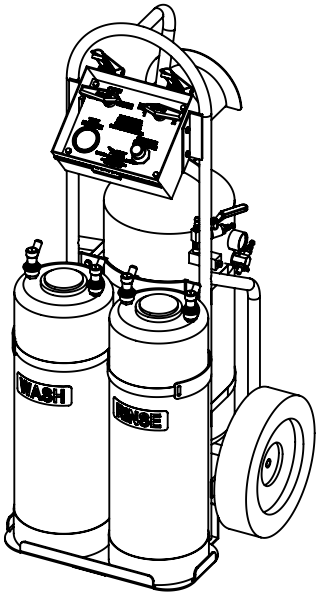
TITLE	ENGINE WASH UNIT		
DWG NO. HT-500-CWA		REV 10	CUSTOMER 3 OF 5
SCALE 1:4	DATE 8/27/2014		SHEET 30 OF 32

SEE ATTACHED DEVIATION

OPERATION OF SERIES 500 COMPRESSOR WASH SYSTEM

1. Use washers equally on each side of axle to space the axle and wheels distance. Minimum end play should be one (1) washer thickness.
2. Fill tanks with cleaning and rinsing solutions.
3. Connect shop air hose to manifold.
4. Turn on air source to charge system and air tank if so equipped. Adjust pressure as required.
5. To agitate, lift pressure relief valve on top of wash tank for 2 to 3 seconds.
6. Connect hoses to appropriate engines (red to #1 & green to #2)

Caution: Always follow engine manufacturers instructions for cleaning solution and compressor washing.



DART AEROSPACE
190 S. Danebo Ave., Eugene, OR. 97402
1-800-556-4166
e-mail: sales@dartaero.com
dartaerospace.com

TITLE: ENGINE WASH UNIT			
DWG NO. HT-500-CWA		REV 10	CUSTOMER 4 OF 5
SCALE 1:16	DATE 7/15/2014		SHEET 31 OF 32

SEE ATTACHED DEVIATION

HT-500-CWA FLOW TEST

ALL TESTS PERFORMED WITH 1 GALLON OF WATER

PSI	OPEN (NO RESTRICTION) SECONDS		50% (RESTRICITON) SECONDS	
20	55		65	
40	38		45	
60	30		40	
80	25		37	

TESTS WERE PERFORMED WITH SHOP AIR HOOKED UP TO THE HT-500-CWA TO KEEP IT AT A CONSTANT PSI.

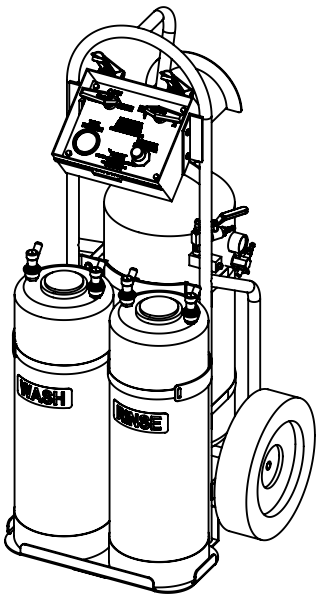
1-1/2 GPM

.946 L = 1 GAL

ALL CONNECTIONS CHECKED FOR LEAKS WITH LEAK DETECTOR

TECHNICIAN: _____

DATE: _____



DART AEROSPACE
190 S. Danebo Ave., Eugene, OR. 97402
1-800-556-4166
e-mail: sales@dartaero.com
dartaerospace.com

TITLE: ENGINE WASH UNIT			
DWG NO. HT-500-CWA		REV 10	CUSTOMER 5 OF 5
SCALE 1:16	DATE 7/15/2014		SHEET 32 OF 32

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: Date: Work Order update only ☐

Work Order: _____

Part No. HT-500-CWA

NCR No.

DISPOSITION

Rework	☐
Scrap	☐
Use-as-is	☐
Suspected Unapproved	☐

AGAINST DEPARTMENT/PROCESS

Skid-tube	☐	Cross tube	☐	Water Jet	☐
Machining	☐	Small Fab	☐	Prod. Eng. Coor.	☐
Thermoforming	☐	Finishing	☐	Rec/Store/Packaging	☐
Large Fab	☐	Composite	☐	Supplier	☐

Engineering	☐		
Quality	☐		
Other	☐		
	☐		

Date :

Step #:

QTY Effective :

MRB (QSI042) Approval

July 23, 2018

Description Work Order Deviation

- Substitute (-65) 15C07-202 with 15C07-126, 5 gallon dip tube.
- Substitute (-73) 06E04-147 Ferrule with McMaster Carr 54105K37 or equivalent.
- Substitute (-14) R-162 with McMaster Carr 41735K11 Regulator (2-125 psi).
- Substitute (-15) PK-1611 with McMaster Carr 41735K48 Mounting Ring Nut.
- Substitute (-06) 100XUC with McMaster Carr 4089K63 100psi Pressure Gauge.
- Substitute (-08) AOP Tech 410-4M4F-B with McMaster Carr 7768K26.
- Substitute (-23) JCD14202010 with McMaster Carr 90835A2010.
- Substitute (-39) NWH-PM6-4 push lock adapter with McMaster Carr 91465K92
- Substitute (-40) NWH-PM4-4 push lock adapter with McMaster Carr 91465K91
- Substitute (-37) PAR169 PF-4-2 fitting with PAR169 PF-6-4
- Substitute (-36) PAR170 PF-4-4 fitting with with PAR170 PF-6-4
- McMaster Carr 50375K47 or equivalent is a suitable item for 010P-67
- McMaster Carr 50785K221 Plug must be used to plug the hole on (-14)
- (-68) 010P-67 is no longer required
- 2.09" hole on 010P-04 and 010P-05 must be opened to 2.25" to accommodate gauge
- The back of the aluminum box must be open up to fit the depth of the new gauge.

Disposition

- This deviation is acceptable.
- The drawing will be updated to incorporate the new supplier part numbers.
- The fit, form and function of the engine wash kit will be as originally intended.
- All deviations must be carried out together
- All edges must be deburred

Completed By

Lead hand / Supervisor Approval Verification

QC / QA Coordinator Approval

Root Cause

Environment	☐	No Re-verfication	☐
Design	X	Operator	☐
Doc/Data	☐	Offset/Setup	☐
Equip/Tooling	☐	Supplier	☐
Handling/Pre	☐	Training	☐
Material	☐	Use for Testing	☐
Internal Transport	☐	Poor Information	☐
Tribal Knowledge	☐	Rushing	☐
LOA	☐	Product Improvement	☐
Substation	☐	Process Improvement	☐
Past Expiry Date	☐	Manufacturing Process	☐
Misidentified	☐	Past Due	☐

FAULT CATEGORY

☐ Pressure/Forced	☐ Temperature/Cure	☐ Power Loss/Surge	☐ Positioned Wrong
☐ Bending	☐ Set-up	☐ Folio/Program	☐ Outside Dimensions
☐ Centre Not Concentric	☐ BOM/Route	☐ Grain	☐ Over/Under tolerance
☐ Cracks	☐ Broken/Damage/Defect	☐ Weld	☐ Part Incorrect
☐ Crimp/Kink/Ripple/Wave	☐ Inspection Incomplete/Unqualified	☐ Wrong Stock Pulled	☐ Part Lost/Missing
☐ Cuffs	☐ Contamination	☐ Out of Sequence	☐ Part Moved
☐ Crushing	☐ Countersink	☐ Off-set	☐ Drawing
☐ Heat Treat	☐ Cut Too Short	☐ Mislabeled	☐ Finish
☐ Wave/Twist in Tube	☐ Instructions Incomplete/Unclear	☐ Fit/Function	☐ Misread
☐ Marks/Chatter	☐ Drill Holes	☐ Misaligned/off center	☐ Turning Sequence

☐ OTHER :

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: Date: Work Order update only ☐

Work Order: _____

Part No. HT-300-CW & HT-500-CWA

NCR No.

DISPOSITION

Rework	☐
Scrap	☐
Use-as-is	☐
Suspected Unapproved	☐

AGAINST DEPARTMENT/PROCESS

Skid-tube	☐	Cross tube	☐	Water Jet	☐	Engineering	☐
Machining	☐	Small Fab	☐	Prod. Eng. Coor.	☐	Quality	☐
Thermoforming	☐	Finishing	☐	Rec/Store/Packaging	☐	Other	☐
Large Fab	☐	Composite	☐	Supplier	☐		☐

Date :

Step #:

QTY Effective :

MRB (QSI042) Approval

April 11, 2018

Description Work Order Deviation

- Substitute ARROW R-162 Regulator with McMaster Carr 41735K11 Regulator (2-125 psi)

- Substitute PK-1611 Regulator Nut with McMaster Carr 41735K48 Mounting Ring Nut

Disposition

- This deviation is acceptable.

- The fit, form and function of the engine wash kit will be as originally intended.

Completed By

Lead hand / Supervisor Approval Verification

QC / QA Coordinator Approval

Root Cause

Environment	☐	☐	No Re-verfication
Design	☐	☐	Operator
Doc/Data	☐	☐	Offset/Setup
Equip/Tooling	☐	☐	Supplier
Handling/Pre	☐	☐	Training
Material	☐	☐	Use for Testing
Internal Transport	☐	☐	Poor Information
Tribal Knowledge	☐	☐	Rushing
LOA	☐	☐	Product Improvement
Substation	X	☐	Process Improvement
Past Expiry Date	☐	☐	Manufacturing Process
Misidentified	☐	☐	Past Due

FAULT CATEGORY

☐ Pressure/Forced	☐ Temperature/Cure	☐ Power Loss/Surge	☐ Positioned Wrong
☐ Bending	☐ Set-up	☐ Folio/Program	☐ Outside Dimensions
☐ Centre Not Concentric	☐ BOM/Route	☐ Grain	☐ Over/Under tolerance
☐ Cracks	☐ Broken/Damage/Defect	☐ Weld	☐ Part Incorrect
☐ Crimp/Kink/Ripple/Wave	☐ Inspection Incomplete/Unqualified	☐ Wrong Stock Pulled	☐ Part Lost/Missing
☐ Cuffs	☐ Contamination	☐ Out of Sequence	☐ Part Moved
☐ Crushing	☐ Countersink	☐ Off-set	☐ Drawing
☐ Heat Treat	☐ Cut Too Short	☐ Mislabeled	☐ Finish
☐ Wave/Twist in Tube	☐ Instructions Incomplete/Unclear	☐ Fit/Function	☐ Misread
☐ Marks/Chatter	☐ Drill Holes	☐ Misaligned/off center	☐ Turning Sequence

☐ OTHER :